

# **INFORMATION HANDOUT**

**For Contract No. 01-0B4404**

**At 01-Hum-169-26.4/29.8**

**Identified by**

**Project ID 0112000128**

## **PERMITS**

United States Army Corps of Engineers

Non-Reporting Nationwide 404

## **WATER QUALITY**

Yurok Tribe Water Quality Control Plan Section 401 Environmental Program Water Quality Certification

## **AGREEMENTS**

California Department of Fish and Wildlife Streambed Alteration Agreement

Notification No. 1600-2016-0024-R1

Tribal Employment Rights Ordinance (TERO) Requirements

Memorandum of Understanding (MOU) Yurok Tribe TERO  
TERO Highway Construction permit (THCP) Application

## **MATERIALS INFORMATION**

Geotechnical Recommendations for Weitchpec Curves, Locations 1 and 2, Dated April 13, 2016

Geotechnical Design Report (Slope Stabilization), Dated February 4, 2016

Department of Industrial Relations, Division of Occupational Safety and Health, Mining and Tunneling Unit,  
Underground Classification, Dated March 21, 2016

Disposal Sites Location Map

Nonpotable Water Source, Dated November, 2014

# **PERMITS**

United States Army Corps of Engineers  
Non-Reporting Nationwide 404



**DEPARTMENT OF THE ARMY**  
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS  
1455 MARKET STREET, 16<sup>th</sup> Floor  
SAN FRANCISCO, CALIFORNIA 94103-1398

MAY 16 2016

Regulatory Division

SUBJECT: File No. 2014-00063N

Mr. Frank Demling  
California Department of Transportation  
P.O. Box 3700  
Eureka, CA. 95502

Dear Mr. Demling:

This letter is in reference to your submittal received January 25, 2016, concerning Department of the Army (Corps) permit authorization to repair and stabilize State Route (SR) 169 at postmiles 26.45, 29.04, and 29.8. The project is located: SR 169 within the Klamath River watershed, 23 miles north of Willow Creek on SR 96, Humboldt County, California.

The purpose of the proposed project is to restore the roadway to prestorm damage conditions. In March 2011, a series of slipouts and slides occurred along SR 169 as the result of a federally declared storm event. The project is needed to maintain a safe and operational roadway to prestorm damage conditions. The project would maintain safe and operational roadways for the traveling public. SR 169 is an east-west route that runs along the Klamath River. The highway is located entirely within the boundaries of the Yurok Indian Reservation and functions as the primary route serving the Yurok Tribal Nation. It provides access to several small communities, while also providing access to the Klamath River for tribal needs, recreation, and sport fishing.

Proposed repairs include construction of two rock buttresses, installation of a buried cast-in-drilled-hole-pile system wall with rock slope protection, culvert headwall replacements, and reconstruction of the roadway. Work within U.S. Army Corps of Engineers' (Corps) jurisdiction would include impacts to Section 404 waters that would temporarily impact about 0.1855 acre of other waters and permanently impact about 0.006 acre of other waters. Impacts are from the installation of about 49 linear feet of fill for permanent impacts and 756 linear feet of fill for temporary impacts. All work shall be completed at the site locations as indicated in the plans labeled "USACE File #2014-00063N, Weitchpec Slipouts Project", in four sheets, dated October 6, 2015, (enclosure 1).

Section 404 of the Clean Water Act (CWA) generally regulates the discharge of dredged or fill material below the plane of ordinary high water in non-tidal waters of the United States, below the high tide line in tidal waters of the United States, and within the lateral extent of wetlands adjacent to these waters. A Preliminary Jurisdictional Determination (JD) has been completed for your site. Preliminary JD's are written indications that there may be waters of the U.S. on a parcel or indications of the approximate location(s) of waters of the U.S. on a parcel.

The enclosed delineation map entitled, "USACE File #2014-00063, Weitchpec Slipouts Project," dated 3/30/16 (enclosure 2), depicts the extent and location of wetlands and other waters of the United States within the boundary area of the site that **may be** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form*. You are requested to sign and date this form and return it to this office within two weeks of receipt

You are advised that the preliminary jurisdictional determination may **not** be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. Section 331 (65 Fed. Reg. 16,486; Mar. 28, 2000). Under the provisions of 33 C.F.R. Section 331.5(b)(9), non-appealable actions include preliminary jurisdictional determinations since they are considered to be only advisory in nature and make no definitive conclusions on the jurisdictional status of the water bodies in question. However, you may request this office to provide an approved jurisdictional determination that precisely identifies the scope of jurisdictional waters on the site; an approved jurisdictional determination may be appealed through the *Administrative Appeal Process*. If you anticipate requesting an approved jurisdictional determination at some future date, you are advised not to engage in any on-site grading or other construction activity in the interim to avoid potential violations and penalties under Section 404 of the Clean Water Act. Finally, you may provide this office new information for further consideration and request a reevaluation of this preliminary jurisdictional determination.

Based on a review of the information you submitted, your project qualifies for authorization under Department of the Army Nationwide Permit (NWP) 14 (Linear Transportation Projects), 77 Fed. Reg. 10,184, February 21, 2012 (enclosure 3), pursuant to Section 404 of the CWA of 1972, as amended (33 U.S.C. § 1344 *et seq.*). The project must be in compliance with the terms of the NWP, the general conditions of the Nationwide Permit Program ([http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/NWP\\_Gen\\_Cond.pdf](http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/NWP_Gen_Cond.pdf)), and the San Francisco District regional conditions cited on our website [http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/Reg\\_Cond.pdf](http://www.spn.usace.army.mil/Portals/68/docs/regulatory/Nationwide/Reg_Cond.pdf). You must also be in compliance with any special conditions specified in this letter for the NWP authorization to remain valid. Non-compliance with any term or condition could result in the revocation of the NWP authorization for your project, thereby requiring you to obtain an Individual Permit from the Corps. This NWP authorization does not obviate the need to obtain other State or local approvals required by law.

This verification will remain valid until March 18, 2017, unless the NWP authorization is modified, suspended, or revoked. Activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon a NWP will remain authorized provided the activity is completed within 12 months of the date of a NWP's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case

basis to modify, suspend, or revoke the authorization in accordance with 33 C.F.R. § 330.4(e) and 33 C.F.R. §§ 330.5 (c) or (d). This verification will remain valid if, during the time period between now and March 18, 2017, the activity complies with any subsequent modification of the NWP authorization. The Chief of Engineers will periodically review NWPs and their conditions and will decide to either modify, reissue, or revoke the permits. If a NWP is not modified or reissued within five years of its effective date, it automatically expires and becomes null and void. It is incumbent upon you to remain informed of any changes to the NWPs. Changes to the NWPs would be announced by Public Notice posted on our website (<http://www.spn.usace.army.mil/Missions/Regulatory.aspx>). Upon completion of the project and all associated mitigation requirements, you shall sign and return the Certification of Compliance (enclosure 4) verifying that you have complied with the terms and conditions of the permit.

General Condition 18 stipulates that project authorization under a NWP does not allow for the incidental take of any federally-listed species in the absence of a biological opinion with incidental take provisions. As the principal federal lead agency for this project, Caltrans/Federal Highways initiated consultation with the National Marine Fisheries Service (NMFS) and FWS, to address project related impacts to listed species, pursuant to section 7(a) of the Endangered Species Act of 1973, as amended, 16 U.S.C. § 1531 *et seq.* On 4/2/15, NMFS concurred that the project fits under the NOAA Programmatic Authorization for Caltrans Routine Maintenance and Repair Activities in District 1, 2, and 3 (October 2013) #2013-9731 and FWS concurred on 5/22/2014, that the Programmatic Informal Consultation for the CALTRANS Routine Maintenance and Repair Activities and Small Projects Program for Districts 1 and 2, AFWO-12B0001-12I0001 (4/9/2014) covers this action.

To ensure compliance with this NWP authorization and to further minimize adverse impacts to water quality and other aquatic resources, including federally listed threatened and endangered species and designated critical, the project is subject to the following Special Conditions:

1. Incidents where any individuals of SONCC coho salmon, CC Chinook salmon, NC steelhead, Pacific eulachon, and green sturgeon listed by NOAA Fisheries under the Endangered Species Act appear to be injured or killed as a result of discharges of dredged or fill material into waters of the United States or structures or work in navigable waters of the United States authorized by this NWP shall be reported to NOAA Fisheries, Office of Protected Resources at (301) 713-1401 and the Regulatory Office of the San Francisco District of the U.S. Army Corps of Engineers at (415) 503-6795. The finder should leave the plant or animal alone, make note of any circumstances likely causing the death or injury, note the location and number of individuals involved and, if possible, take photographs. Adult animals should not be disturbed unless circumstances arise where they are obviously injured or killed by discharge exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NOAA Fisheries, Office of Protected Resources, to collect

specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.

- 2 The NMFS addressed adverse effects to SONCC coho salmon, CC Chinook salmon, and NC steelhead. On 4/2/15, NMFS concurred that the project fits under the NOAA Programmatic Authorization for Caltrans Routine Maintenance and Repair Activities in District 1, 2, and 3 (October 2013) #2013-9731 and FWS concurred on 5/22/2014, that the Programmatic Informal Consultation for the CALTRANS Routine Maintenance and Repair Activities and Small Projects Program for Districts 1 and 2, AFWO-12B0001-12I0001 (4/9/2014) covers this action. All measures from this B.O. and all work restrictions are incorporated as special conditions to the NWP authorization for your project to ensure unauthorized incidental take of species and loss of critical habitat does not occur.
- 3 Best management practices (BMP's) will be implemented including installation of silt fences, straw bales, gravel bags, and fiber rolls, if appropriate. Placement of these materials will control sediment discharge and minimize sediment release into receiving waters.
- 4 Fueling activities will occur in designated upland locations.
- 5 No concrete washings or water from concrete will be allowed to flow into waterways. No concrete will be poured within flowing water in waterways. Waste management best management practices will be implemented.
- 6 No debris, sand, silt, trash, concrete or washings thereof, oil or other petroleum products or washings thereof, or other foreign materials shall be allowed to enter or be placed where it may be washed by rainfall or runoff into waters of the U.S. Upon project completion, any and all excess construction materials, debris, and/or other excess project materials shall be removed to an appropriate upland disposal site.
- 7 All construction materials (new and old) will be stored in a contained area in the staging area.
- 8 All debris will be transported to an appropriate disposal landfill.
- 9 The permittee shall restore all temporarily impacted areas to pre-construction contours. All disturbed areas shall be revegetated with pre-existing and/or native wetland vegetation.

- 10 All measures identified on pages 8-12 of the document entitled: "Weitchpec Slipouts Project," dated January 2016 and the "Weitchpec Revegetation Plan," April 2016, shall be implemented.

You may refer any questions on this matter to Carol Heidsiek of our Regulatory staff by telephone at 707-443-0855 or by email at Carol.A.Heidsiek@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, Eureka Field Office, 601 Startare Drive, Box 14, Eureka, California 95501, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner, while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: <http://www.spn.usace.army.mil/Missions/Regulatory.aspx>

Sincerely,



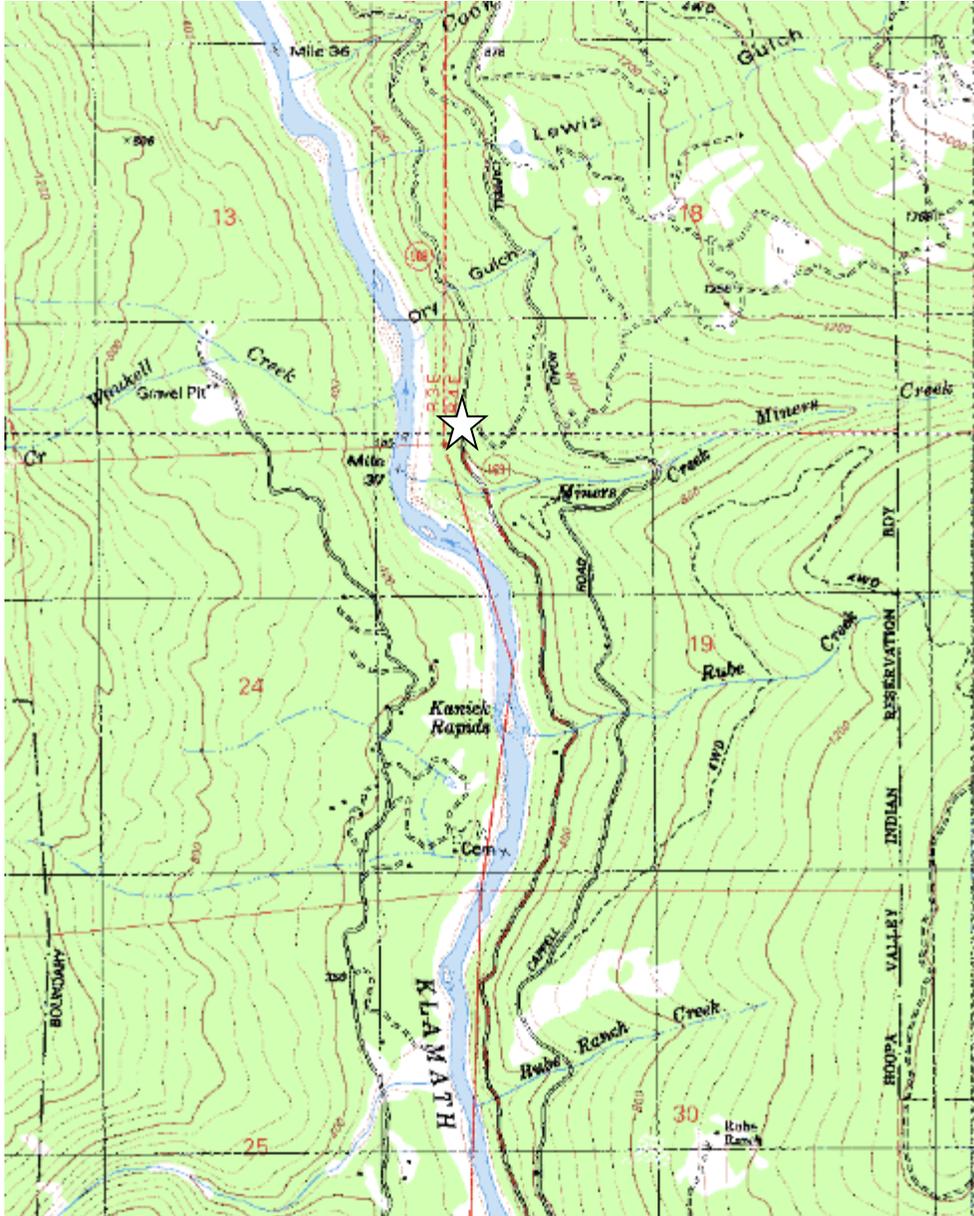
Aaron O. Allen  
Chief, Regulatory Division

Enclosures

Copies Furnished (w/ encl 1 only):

NOAA, Arcata, CA  
USFWS, Arcata, CA  
CA RWQCB, Santa Rosa, CA  
CDFW, Eureka, CA

Project Location is approximately  
41.2504°N, -123.7732°W (NAD83/WGS84)  
**USGS Johnsons (CA) Quad**  
Projection is UTM Zone 10 NAD83



USACE File #2014-00063N  
Weitchpec Slipouts Project  
October 6, 2015

Figure 1 Impact Map 1

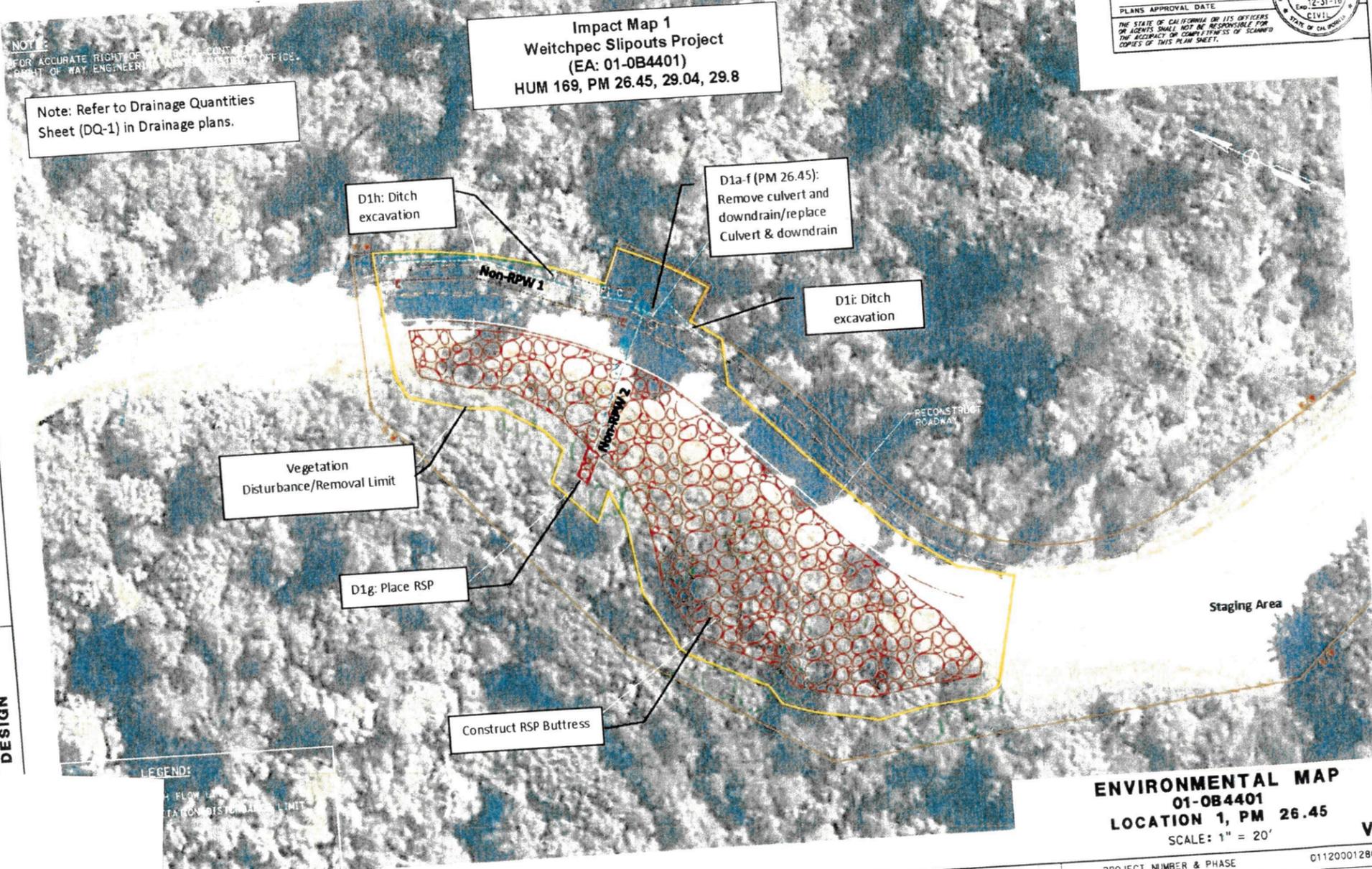
# 2014-00063,  
Weitchpec Slipout Project

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	HUM	169	26.4/29.8		

**PRELIMINARY**  
REGISTERED CIVIL ENGINEER DATE  
PLANS APPROVAL DATE

JAMES D. RASMUSSEN  
No. 016401  
Exp. 12-31-16  
CIVIL  
STATE OF CALIFORNIA

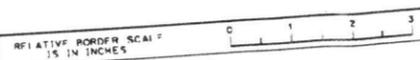
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF REPRODUCED COPIES OF THIS PLAN SHEET.



DESIGN	FUNCTIONAL SUPERVISOR	CHECKED BY	DESIGNED BY	REVISOR
DESIGN	JOHN L. MARTIN	JOHN L. MARTIN	BETH A. ELMORE	BETH A. ELMORE

LEGEND:  
FLOW DIRECTION  
VEGETATION DISTURBANCE/REMOVAL LIMIT

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UNIT 0315 PROJECT NUMBER & PHASE 01120001280

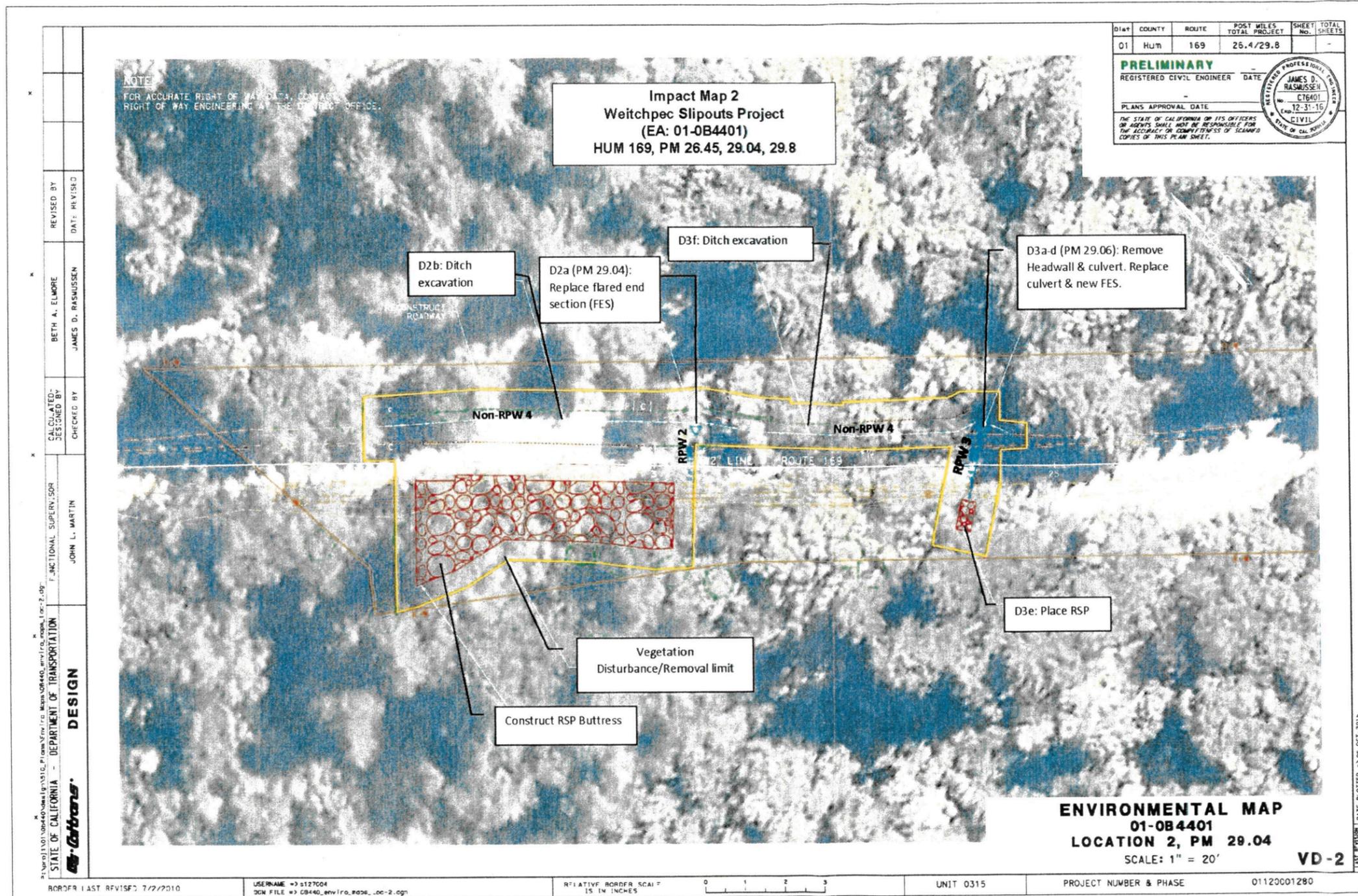
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TIME PLOTTED => 10:06:15

January 2016



USACE File #2014-00063N  
Weitchpec Slipouts Project  
October 6, 2015

Figure 2 Impact Map 2





# PRELIMINARY JURISDICTIONAL DETERMINATION FORM

## San Francisco District

This Preliminary Jurisdictional Determination finds that there "may be" waters of the United States in the subject review area and identifies all such aquatic features, based on the following information:

Regulatory Division: North Branch

File Number: 2014-00063-N

PJD Completion Date: 03-30-2016

### Review Area Location

City/County: Weitchpec/Humboldt State: California  
Nearest Named Waterbody: Klamath River  
Approximate Center Coordinates of Review Area  
Latitude (degree decimal format): 41.255°N  
Longitude (degree decimal format): -123.744°E  
Approximate Total Acreage of Review Area: 3.81 acres

File Name: Weitchpec Slipouts Project

### Applicant or Requestor Information

Name: Frank Demling  
Company Name: California Department of Transportation  
Street/P.O. Box: P.O. Box 3700  
City/State/Zip Code: Eureka CA, 95502-3700

### Estimated Total Amount of Waters in Review Area

Non-Wetland Waters: 1174 lineal feet 1-3 feet wide and/or  
0.063 acre(s) Flow Regime: Intermittent

Wetlands: lineal feet feet wide and/or  
0.019 acre(s) Cowardin Class: Select

### Name of Section 10 Waters Occurring in Review Area

Tidal:  
Non-Tidal: Klamath River

- Office (Desk) Determination  
 Field Determination:  
Date(s) of Site Visit(s):

**SUPPORTING DATA: Data reviewed for Preliminary JD (check all that apply – checked items should be included in case file and, where checked and requested, appropriately reference sources below)**

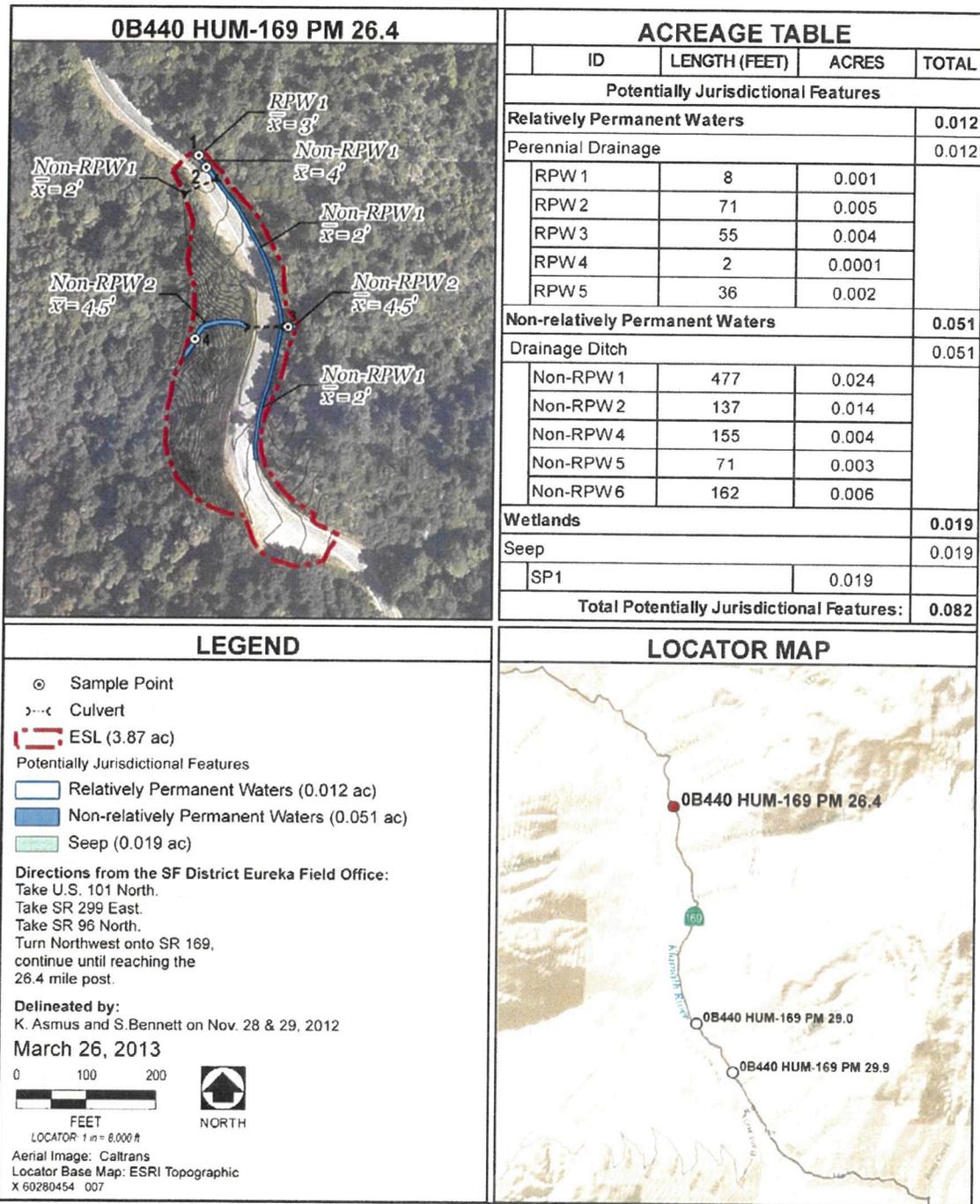
- Maps, Plans, plots or plat submitted by or on behalf of applicant/requestor (specify): Maps provided in Appendix C of Wetland Report
- Data sheets submitted by or on behalf of applicant/requestor (specify): Western Mt., Valley & Coastal Region Wetland Forms provided in March 2013 Wetland Delineation and Preliminary Jurisdictional Determination Weitchpec Slipouts Report
- Corps concurs with data sheets/delineation report.  
 Corps does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps.
- Corps navigable waters' study (specify):
- U.S. Geological Survey Hydrologic Atlas:  
 USGS NHD data.  
 USGS HUC maps.
- U.S. Geological Survey map(s) (cite quad name/scale): Johnsons, French Camp Ridge
- USDA Natural Resources Conservation Service Soil Survey.
- National wetlands inventory map(s) (specify): USFWS site queried 2012
- State/Local wetland inventory map(s) (specify):
- FEMA/FIRM maps.
- 100-year Floodplain Elevation (specify, if known):
- Photographs:  Aerial (specify name and date):  
 Other (specify name and date): Appendix E of Wetland Report Representative Photographs
- Previous JD determination(s) (specify File No. and date of response letter):
- Other information (specify):

**IMPORTANT NOTE: If the information recorded on this form has not been verified by the Corps, the form should not be relied upon for later jurisdictional determinations.**

\_\_\_\_\_  
Signature and Date of Regulatory Project Manager  
(REQUIRED)

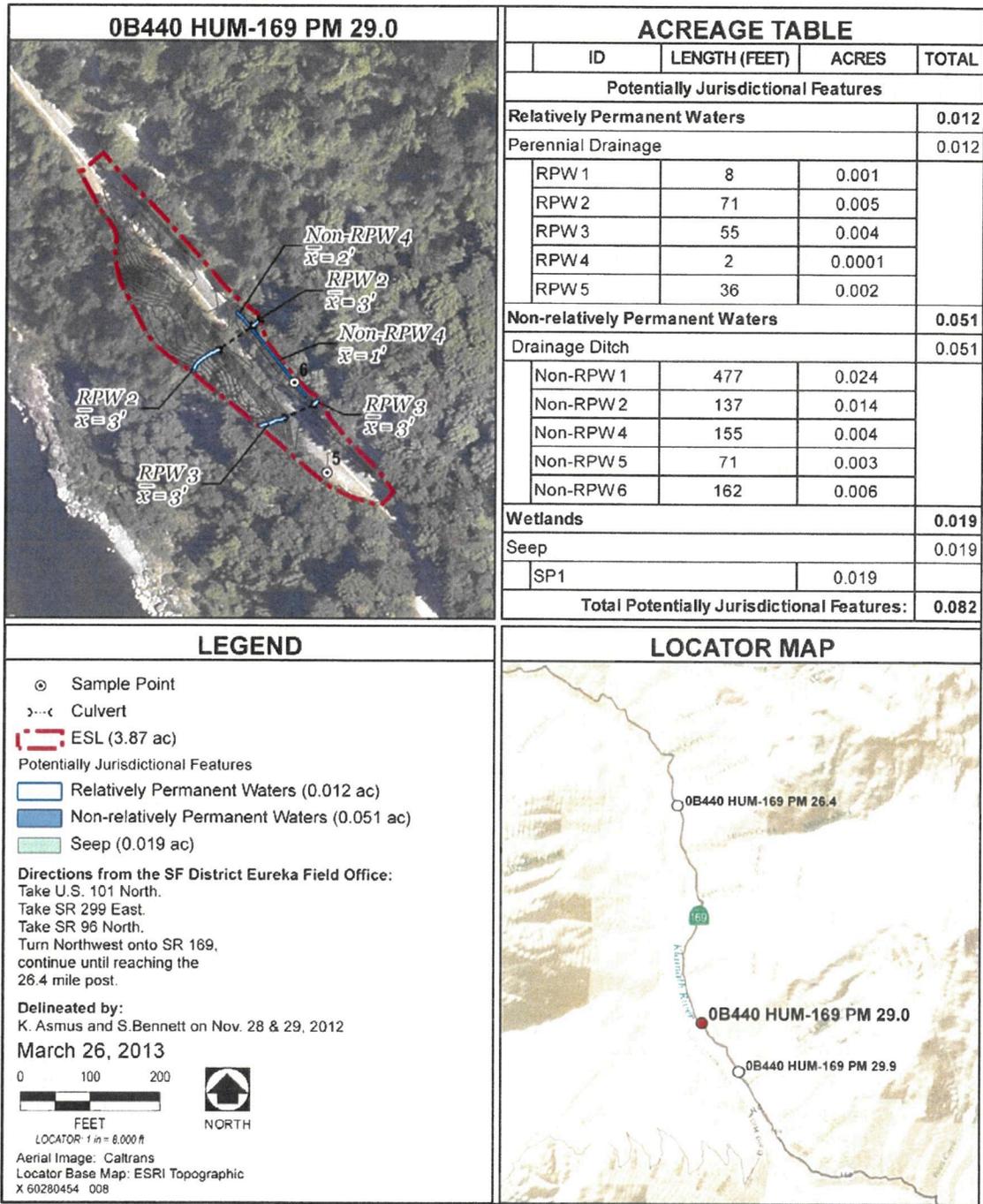
\_\_\_\_\_  
Signature and Date of Person Requesting Preliminary JD  
(REQUIRED, unless obtaining the signature is impracticable)





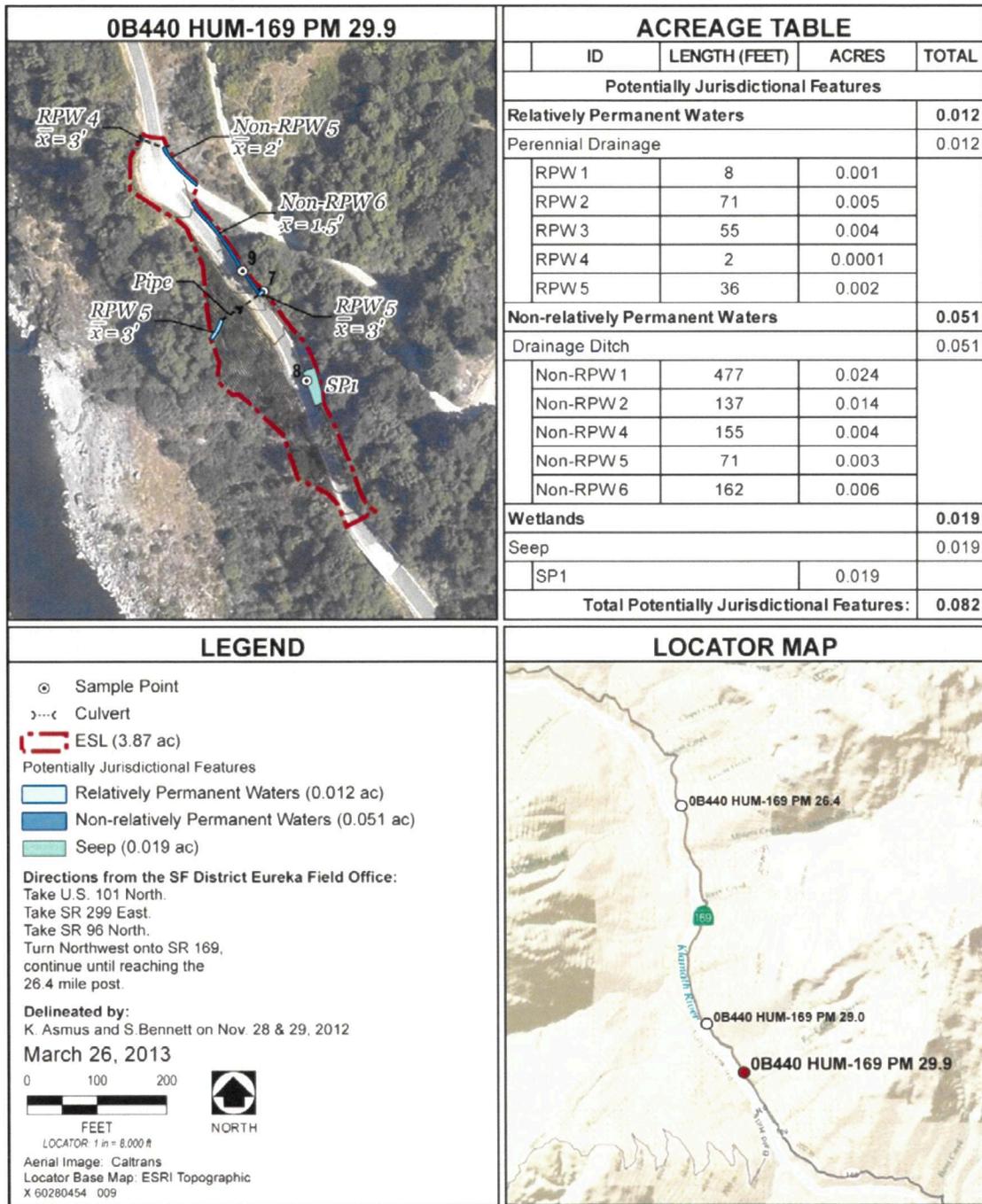
Source: AECOM 2012, Caltrans 2012

**Figure C1 Wetland Delineation Map**



Source: AECOM 2012, Caltrans 2012

**Figure C2 Wetland Delineation Map**



Source: AECOM 2012, Caltrans 2012

**Figure C3 Wetland Delineation Map**

**U.S. Army Corps of Engineers**  
 San Francisco District  
 Regulatory Branch

U.S. Army Corps of Engineers Preliminary Jurisdictional Determination Pursuant to Section 404 of the Clean Water Act of 1972, as amended (33 U.S.C. § 1344 *et seq.*).

Preliminary Jurisdictional Determination for the Weitchpec Slipouts Project, Caltrans, Humboldt, CA  
 Sheets 1 thru 3

File number 2014-00063N Date: 30 March 2016

USACE File # 2014-00063, Weitchpec Slipouts Project 3/30/16

- Wetlands subject to Sec 404 CWA
- Other Waters subject to Sec 404 CWA
- Project Boundary

# **WATER QUALITY**

Yurok Tribe Water Quality Control Plan  
Section 401 Environmental Program Water Quality Certification



# YUROK TRIBE

190 Klamath Boulevard • Post Office Box 1027 • Klamath, CA 95548

Phone: (707) 482-1350 • Fax: (707) 482-1377

May 4, 2016

Denise Walker-Brown  
Associate Environmental Planner (Biologist)  
North Region Environmental Services  
Caltrans, District 1  
Eureka  
(707) 441-4684

Subject: Yurok Tribe Water Quality Control Plan Section 401 Water Quality Certification for *repair and stabilization of State Route (SR) 169 in Humboldt County at three locations: post miles (PM) 26.45, 29.04 and 29.8*

Dear Ms. Brown,

The Yurok Tribe Environmental Program (YTEP) received your application for a water quality certification to *repair and stabilize State Route (SR) 169 in Humboldt County at three locations: post miles (PM) 26.45, 29.04 and 29.8* under the Yurok Tribe Water Quality Control Plan Section 4.4 provisions. Thank you for providing a thorough justification for the revision. YTEP staff have reviewed the request and have granted an extension to complete the project by October 15th, 2017. *2017. 24*

**Please be informed that under the Clean Water Act (CWA) you may need to apply to USEPA to obtain CWA Section 401 certification if the project will involve a US Army Corps of Engineers section 404 permit or any discharges to waters of the United States.**

### **Project Description**

According to the project description and supporting documentation, the purpose of the project is to *repair and stabilize State Route (SR) 169 in Humboldt County at three locations: post miles (PM) 26.45, 29.04 and 29.8* under

### **Certification**

We hereby grant Yurok Tribe Water Quality Control Plan Section 401 Certification for your project with the following conditions:

1. All land disturbing work shall occur between May 15th and October 15th, 2016-2017. Should the project need to be extended, early consultation with YTEP should be initiated.

2. All sites will be 'winterized' prior to seasonal work shut down. An inspection by Yurok Tribe staff shall be requested at least 7 days in advance of seasonal work shut down. The applicant may request seasonal extensions based on field review by YTEP and in conjunction with other permit and regulatory requirements (i.e. NOAA fisheries, U.S. Army Corps, USEPA).
3. You shall limit any excavation work in and adjacent to applicable waters to that necessary for the project.
4. No construction materials -- including cement, debris, oil or petroleum products, sand, sawdust, silt, slash, or soil -- shall be allowed to enter or be placed where it may enter the live channel of applicable waters in amounts that are considered to have adverse effects on the beneficial uses.
5. You shall not permanently dispose of any construction material, demolition wastes, wastewater, or any other pollutant within applicable waters.
6. You shall not permanently dispose of any excess sediment materials that are generated from this project on lands within the Yurok Reservation unless disposal sites are identified and approved before project initiation.
7. Water used in dust suppression shall contain no contaminants that could violate surface water or aquifer standards and originate from a source based on consultation with Yurok Tribe Fisheries and/or Environmental Program (see Yurok Tribe Water Quality Control Plan for water quality objectives).
8. All stationary machinery that uses gasoline or diesel fuel shall be placed within impermeable spill containment vessels capable of preventing migration of fuel in the event of a spill.
9. All contractors and subcontractors shall report, verbally and in writing, immediately upon discovery, any spills of chemical contaminants, including oil, gasoline, hydraulic fluid, or diesel fuel, during or after operations. Reports shall be submitted to EPA Region 9 and the Yurok Tribe. Appropriate cleanup of spills shall commence immediately. Within two weeks following cleanup, a summary report shall be submitted to EPA Region 9 and the Yurok Tribe that describes the reason for the spill, the spill duration and volume, steps taken to correct the problem, the remediation/clean up activities and steps taken to prevent a recurrence of the problem.
10. Best Management Practices (BMPs) for sediment and turbidity control shall be implemented in accordance with the project description provided in the permit application and in place prior to, during, and after construction in order to ensure that negligible discharges to applicable waters are ensured.
11. Water discharged from the project site shall not contain settleable materials or suspended

materials in concentrations that cause nuisance or adversely affect beneficial uses. The project shall not violate any narrative and numeric criteria established in the Yurok Tribe Water Quality Control Plan (see Yurok Tribe Water Quality Control Plan for water quality objectives)

12. If, at any time, an unauthorized discharge to surface water occurs, or any water quality problem arises, the project shall cease immediately and you shall immediately notify EPA Region 9 and the Yurok Tribe.

13. Yurok Tribe shall be notified at least three business days in advance of construction in order to allow staff to be present during construction.

14. If there are any substantive changes in the proposed project that may affect water quality, you shall notify the Yurok Tribe Environmental Program, immediately. Failure to do so will result in revocation of this certification.

15. You shall provide a copy of this certification to all contractors and subcontractors. You also shall review the conditions of this certification with all such contractors and subcontractors.

16. You shall notify YTEP in writing prior to any drafting of water from surface water sources for this project.

17. All material removed from the construction site shall be placed at Yurok Tribe Council approved locations.

18. All revegetation shall comply with the "Weitchpec Slipouts Revegetation Plan April 2016."

The point of contact at the Yurok Tribe is Micah Gibson. Please contact at (707) 954-1996 or at [mgibson@yuroktribe.nsn.us](mailto:mgibson@yuroktribe.nsn.us).

Sincerely,



Micah Gibson  
Yurok Tribe Environmental Program Assistant Director  
Water Division  
Ph. 707-482-1822x1002  
Fax: 707-482-1722  
Cell: 707-954-1996  
[mgibson@yuroktribe.nsn.us](mailto:mgibson@yuroktribe.nsn.us)

## **AGREEMENTS**

California Department of Fish and Wildlife Streambed Alteration Agreement

Notification No. 1600-2016-0024-R1



California Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Region 1 - Northern  
601 Locust Street  
Redding, CA 96001  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

*EDMUND G. BROWN, Jr., Governor*  
*CHARLTON H. BONHAM, Director*



May 13, 2016

Mr. Frank Demling  
California Department of Transportation  
Post Office Box 3700  
Eureka, CA 95502-3700

Subject: Final Lake or Streambed Alteration Agreement  
Notification No. 1600-2016-0024-R1  
Weitchpec Slipouts

Dear Mr. Demling:

Enclosed is the final Streambed Alteration Agreement (Agreement) for the Weitchpec Slipouts Project (Project). Before the California Department of Fish and Wildlife (Department) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, the Department, acting as a responsible agency, filed a Notice of Determination (NOD) within five working days of signing the Agreement. The NOD was based on information contained in the Mitigated Negative Declaration prepared by the lead agency.

Under CEQA, the filing of an NOD triggers a 30-day statute of limitations period during which an interested party may challenge the filing agency's approval of the Project. You may begin the Project before the statute of limitations expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Richard Lis, Senior Environmental Scientist (Specialist) at (530) 225-2142 or [richard.lis@wildlife.ca.gov](mailto:richard.lis@wildlife.ca.gov).

Sincerely,

A handwritten signature in blue ink that reads "Richard Lis".

Richard Lis, Ph.D.  
Senior Environmental Scientist (Specialist)

*Conserving California's Wildlife Since 1870*

**Notice of Determination**

**TO:**  Office of Planning and Research **FROM:** California Department of Fish and Wildlife  
Region 1 - Northern  
601 Locust Street  
Redding, CA 96001  
Contact: Richard Lis  
Phone: (530) 225-2142

*For U.S. Mail:*  
P.O. Box 3044  
Sacramento, CA 95812-3044

*Street Address:*  
1400 Tenth Street  
Sacramento, CA 95814

**LEAD AGENCY (If different from above):**  
California Department of Transportation  
703 B Street  
Marysville, CA 95901  
Contact: Adele Pommerenck  
Phone: (530) 741-4215

**SUBJECT: Filing of Notice of Determination pursuant to § 21108 of the Public Resources Code**

State Clearinghouse Number: 2014092022

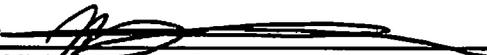
Project Title: Lake or Streambed Alteration Agreement No. 1600-2016-0024-R1

Project Location: The project is located along State Route 169, between post mile 26.4 and 29.8, approximately 5 miles north of the town of Weitchpec, in the County of Humboldt, State of California. Location is at T10N, R3E, sec 13; T10N, R4E, sec.'s 18, 30, and 31, Humboldt Meridian.

Project Description: The project's primary elements are to repair and stabilize a series of slipouts that occurred in March 2011 following a severe rain-storm. Proposed repairs include construction of two rock buttresses, installation of a buried cast-in-drilled hole-pile system with rock slope protection, culverts, and culvert headwalls replacements, and reconstruction of the roadway at each location.

This is to advise that the California Department of Fish and Wildlife (CDFW), acting as  the lead agency /  a responsible agency approved the above-described project on the date signed below and has made the following determinations regarding the above described project:

1. The project  will /  will not have a significant effect on the environment. (This determination is limited to effects within CDFW's jurisdiction when CDFW acts as a responsible agency.)
  2.  An environmental impact report (EIR) /  A negative declaration /  A timber harvesting plan was prepared for this project pursuant to CEQA.
  3. Mitigation measures  were /  were not made a condition of CDFW's approval of the project.
  4. A Statement of Overriding Considerations  was /  was not adopted by CDFW for this project.
  5. Findings  were /  were not made by CDFW pursuant to Public Resources Code § 21081(a). CDFW did, however, adopt findings to document its compliance with CEQA.
  6. Compliance with the environmental filing fee requirement at Fish and Game Code § 711.4 (check one):
    - Payment is submitted with this notice.
    - A copy of a receipt showing prior payment is on file with CDFW.
    - A copy of the CEQA Filing Fee No Effect Determination Form signed by CDFW is attached to this notice.
- Lead Agency certification: CDFW, as Lead Agency, has made the final EIR with comments and responses and record of project approval, or the Negative Declaration, available to the General Public at the CDFW office identified above.
- Responsible Agency statement: The final EIR, Negative Declaration, or THP that was prepared by the Lead Agency for this project is available to the General Public at the office location listed above for the Lead Agency. CDFW's record of decision is available at the CDFW office identified above.

Signed:   
Michael R. Harris  
Habitat Conservation Planning Supervisor  
Northern Region

Date: 5-16-16

Date Received for filing at OPR:

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE  
CEQA FINDINGS FOR THE  
AGREEMENT REGARDING PROPOSED LAKE OR STREAMBED ALTERATION  
No. 1600-2016-0024-R1**

**Introduction**

The California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, *et seq.*) and the State CEQA Guidelines (Guidelines) (Section 15000, *et seq.*, Title 14, California Code of Regulations) require that no public agency shall approve or carry out a project for which a mitigated negative declaration (MND) has been completed that identifies one or more significant effects, unless the agency makes the following finding as to each significant effect:

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

As the lead agency for the project, the California Department of Transportation adopted the MND for the Project on **November 26, 2014**. The California Department of Transportation found that the Project will not result in significant environmental effects with the mitigation measures required in, or incorporated into the Project.

The California Department of Fish and Wildlife (CDFW) is issuing a Lake or Streambed Alteration Agreement (Agreement) to the project applicant, **Mr. Frank Demling representing the California Department of Transportation**. The project is located along State Route 169, between post mile 26.4 and 29.8, approximately 5 miles north of the town of Weitchpec, in the County of Humboldt, State of California. Location is at T10N, R3E, sec 13; T10N, R4E, sec.'s 18, 30, and 31, Humboldt Meridian.

Because CDFW is issuing the Agreement, it is a "responsible agency" under CEQA for the Project. As a CEQA Responsible Agency, CDFW is required by Guidelines § 15096 to review the environmental document certified by the lead agency approving the projects or activities addressed in the Agreement and to make certain findings concerning a project's potential to cause significant, adverse environmental effects. However, when considering alternatives and mitigation measures approved by the lead agency, a responsible agency is more limited than the Lead Agency. In issuing the Agreement, CDFW is responsible only for ensuring that the direct or indirect environmental effects addressed in the Agreement are adequately mitigated or avoided. Consequently, the findings adopted or independently made by CDFW with respect to the approval of Agreements regarding proposed Lake or Streambed Alterations are more limited than the findings of the lead agency funding, approving, or carrying out the project activities addressed in such Agreements.

**Findings**

CDFW has considered the MND adopted by the California Department of Transportation. CDFW has independently concluded that the Agreement should be issued under the terms and conditions specified therein. In this regard, CDFW hereby adopts any findings of the California Department of Transportation as set forth in the MND and record of project approval, insofar as those findings pertain to the project's impacts on biological resources.

**Signature:** 

Michael R. Harris  
Habitat Conservation Planning Supervisor  
Northern Region

**Date:** 5-16-16

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE**  
NORTHERN REGION  
601 LOCUST STREET  
REDDING, CA 96001



**STREAMBED ALTERATION AGREEMENT**  
NOTIFICATION No. 1600-2016-0024-R1  
Unnamed intermittent streams and unnamed ephemeral  
drainages, all tributaries to Klamath River.

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
Weitchpec Slipouts Project

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (DFW) and the California Department of Transportation (Permittee) as represented by Mr. Frank Demling.

## **RECITALS**

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFW on January 25, 2016 that Permittee intends to complete the project described herein;

WHEREAS, pursuant to FGC section 1603, DFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources;

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources;

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

## **PROJECT LOCATION**

The project is located along State Route 169, between post mile 26.4 and 29.8, approximately 5 miles north of the town of Weitchpec, in the County of Humboldt, State of California. Location is at T10N, R3E, sec 13; T10N, R4E, sec.'s 18, 30, and 31, Humboldt Meridian.

## **PROJECT DESCRIPTION**

The project's primary elements are to repair and stabilize a series of slipouts that occurred in March 2011 following a severe rain-storm. Proposed repairs include construction of two rock buttresses, installation of a buried cast-in-drilled hole-pile system with rock slope protection, culverts, and culvert headwalls replacements, and reconstruction of the roadway at each location. The slipout repairs will occur at three locations (1, 2, 3) and are briefly described below (full descriptions can be found in the application materials submitted by the Permittee). The drainages are likely to be dry in the summer and no diversion of water would be necessary; however, flow may occur from ground-water recharge that varies from year to year and varies with precipitation patterns of the preceding seasons. Therefore, clear water diversions may be necessary depending upon specific conditions when construction begins.

### **Location 1 (PM 26.45)**

Work at location 1 will involve: adding a 24 inch diameter by 13 ft. extension to the existing culvert; construction of a new headwall; replacement of the existing rock facing of the culvert inlet; construction of a rock slope protection buttress about 30 ft deep and 16 ft thick; reconstruction of the roadway, with regrading of inboard ditch and installation of erosion control devices.

### **Location 2 (PM 29.04)**

Reconstruction work planned for this location consists of the following primary actions: (1) culvert at PM 29.04, remove existing headwall at inlet and install flared end sectional, then replace existing rock facing at inlet; (2) construct rock slope protection buttress by removing part of existing highway and slope, backfill with ¼ ton rock topped with layer of smaller rock (this buttress will be approximately 25 ft deep and 16 ft thick; (3) replace culvert at PM 29.06, remove existing 24 inch diameter culvert and replace with 30 inch diameter culvert and construct new inlet and headwall, place rock slope protection at outlet; (4) reconstruct all excavated roadway; (5) regrade and repair inboard ditches; (6) install erosion control devices.

### **Location 3 (PM 29.8)**

Work at this location will consist of a Cast-In-Drill-Hole-Pile System with RSP to stabilize the upslope slide and downslope slip out. Included with this work will be the following: (1) relocate utility lines prior to construction; (2) replace culvert with 48 inch steel pipe and inlet drainage system, replace down-drain, and place RSP at outlet; (2) place RSP on slopes; (3) repair damaged roadway; (4) install erosion control devices.

## PROJECT IMPACTS

Project impacts for the three locations are of the following.

### Riparian Vegetation

Temporary Impacts: 23,958 ft<sup>2</sup> (0.55 acre)

### Upland Vegetation

Temporary impacts: 26,136 ft<sup>2</sup> (0.60 acre)

## MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

### 1. Administrative Measures

Permittee shall meet each administrative requirement described below.

- 1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFW personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 Notification of Conflicting Provisions. Permittee shall notify DFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFW shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that DFW personnel may enter the project site at any time, after notifying the Resident Engineer, to verify compliance with the Agreement.

### 2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

## **PROJECT TIMING**

- 2.1 **General Work Period for Stream Channel and Banks** . All work on the stream banks or within the stream channel, shall be confined to the period commencing May 15, and ending October 15, of any year in which this Agreement is valid and the stream is dry or in low flow conditions. If weather conditions permit, and the stream remains in low flow conditions or dry, the Permittee may perform work within the stream channel or on the banks after October 15, provided a written request is made to the Department at least 5 days before the proposed work period variance. Written approval from the Department for the proposed work period variance must be received by the Permittee prior to the start or continuation of work after October 15. An exception to this general timing provision is allowed for the clear water diversion condition, see sub-section 2.28.
- 2.2 **Required Measures for Work after October 15**. If work is performed within the stream channel or on the banks after October 15, the Permittee shall do all of the following:
- a. Stage erosion and sediment control materials at the work site.
  - b. Monitor the seventy-two (72) hour forecast from the National Weather Service.
  - c. When the 72-hour forecast indicates a probability of precipitation of 60% or greater, or at the onset of any precipitation, ground disturbing activities shall cease and erosion control measures shall be implemented to stabilize exposed soils and prevent the mobilization of sediment into the stream channel or adjacent wetland or riparian areas.

## **HABITAT AND SPECIES PROTECTION**

- 2.3 **Delineating Limits of Work**. Prior to initiating vegetation or ground disturbing Project activities, Permittee shall clearly delineate the limits of the work area including Environmentally Sensitive Areas. Permittee shall restrict all Project activities to the designated work area and shall maintain all fencing, stakes and flags until the completion of Project activities.
- 2.4 **Minimize Loss of Riparian Vegetation**. Removal of existing riparian vegetation shall not exceed the minimum necessary to complete operations.
- 2.5 **Take of State Threatened or Endangered Species**. This Agreement does not authorize the take of any State threatened or endangered species. The State

listed Southern Oregon/Northern California Coastal (NONCC) coho salmon (*Oncorhynchus kisutch*) are found in the Klamath River and tributaries; however, this project will be working in intermittent and ephemeral streams which do not support fish, and hence no take, or potential take, of this species will occur. If the project could result in the "take" of a state listed threatened or endangered species, the Permittee has the responsibility to obtain from the Department, a California Endangered Species Act Permit (CESA 2081 Permit). The Department may formulate a management plan that will avoid or mitigate take. If appropriate, contact the Department CESA coordinator at (530) 225-2300.

- 2.6 **Amphibians and Reptiles – Preconstruction Surveys and Relocation.** The Permittee has assumed the presence of five species of amphibians: pacific tailed frog (*Ascaphus truei*), foothill yellow-legged frog (*Rana boylei*), northern red-legged frog (*Rana aurora*), Del Norte salamander (*Plethodon elongatus*), and southern torrent salamander (*Rhyacotriton variegatus*); and one reptile: western pond turtle (*Emys marmorata*). The most likely species to potentially occur within the project locations are: foothill yellow-legged frog (*Rana boylei*), northern red-legged frog (*Rana aurora*). Pre-construction surveys for these amphibians and reptiles will be conducted, by a qualified biologist, in all areas planned for construction activities (including, but not limited to, vegetation removal and soil disturbance) no early than two weeks prior to construction activities. If special status amphibians or reptiles are found, a qualified biologist, in coordination with CDFW, will relocate them to a safe species specific appropriate habitat nearby, but outside the project environmental study limits.
- 2.7 **Installation of Environmentally Sensitive Area (ESA) Fencing.** ESA fencing shall be installed as the first order of work and in accordance with the Project plans and drawings. Inspection of the ESA fencing installation will be conducted by the Environmental Construction Liaison to ensure proper placement.
- 2.8 **ESA Fencing Shown on Project Plans.** ESA fencing shall consist of temporary orange construction fence or other highly visible material that clearly delineates the limits of Environmentally Sensitive Areas which shall be clearly shown on the Project plans and drawings. The Permittee shall ensure that the contractor, subcontractors, and all personnel working on the Project are instructed on the purpose of the ESA fencing and understand the limits of the work area.
- 2.9 **Vegetation Removal Period and Nesting Birds.** Removal of trees and shrubs from the work area shall take place between September 15 and January 31 to

avoid impacts to nesting birds and the northern spotted owl (*Strix occidentalis caurina*). Take of migratory birds will be avoided during construction activities. Active nests of birds are all nests being constructed, maintained, or defended, by one or more parents, whether or not eggs or nestlings are in the nest itself. If active nests are found, a qualified biologist will coordinate with the CDFW to establish species specific buffers for the species, which shall be maintained until the young have fully fledged from the nest and have departed from the territory of the nest.

- 2.10 **Materials for Rock Slope Protection.** RSP and energy dissipation materials shall consist of clean (i.e. quarry run or equivalent) rock, competent for the application, sized and properly installed to resist washout. RSP slopes shall be supported with competent boulders keyed into a footing trench with a depth sufficient to properly seat the footing course boulders and prevent instability (typically at least 1/3 diameter of footing course boulders). Excavation spoils shall not be side-cast into the channel nor is any manipulation of the substrate of the channel authorized except as herein expressly provided.
- 2.11 Executive Order 13112 requires federal agencies to prevent and control the introduction and spread of invasive species, therefore all equipment shall be washed pre – and post - construction to prevent the spread of any noxious weeds. All areas left disturbed at the end of construction will be seeded and mulched to help prevent the establishment of invasive weeds (see section 2.25 below).

## **PETROLEUM, CHEMICAL AND OTHER POLLUTANTS**

- 2.12 **Storage of Materials** All construction-related materials and equipment shall be stored at a local Caltrans maintenance yard or in designated staging areas located outside of the floodplain in upland areas located within Caltrans right-of-way.
- 2.13 **Work Adjacent to Watercourses.** As part of the proposed construction activities, heavy equipment (drilling trucks, backhoe, excavator, etc.) may be required to work within and/or adjacent to perennial watercourses. Therefore, there is potential for chemical contamination as a result of a leak or spill of petroleum or hydraulic products into a channel. Measures will be taken to avoid or minimize potential chemical contamination, which will include no staging, storage and refueling of vehicles and equipment within 100 feet of any watercourse. In the event of a leak or spill, the project shall cease immediately and the Yurok Tribe and CDFW shall be notified.
- 2.14 **Refueling.** Refueling and vehicle maintenance shall be performed at least 100

feet from streams or other water bodies unless approved in writing by DFW. If equipment must be washed, washing will occur where the water cannot flow into a creek channel.

- 2.15 Use of Equipment Prohibited in Live Streams. No equipment or machinery shall be operated within any flowing stream.
- 2.16 Maintenance and Inspection of Equipment to Prevent Leaks. Any equipment or vehicles driven and/or operated within or adjacent to the stream channel shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat.
- 2.17 Drip Pans. Stationary equipment such as motors, pumps, generators, and welders that contain deleterious materials, located adjacent to the stream channel shall be positioned over drip pans, for any part of the equipment that drips fluids.
- 2.18 Pollution of Waters of the State Prohibited. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, asphalt, paint or other coating material, oil or petroleum products or other organic or earthen material from any construction, or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any stream or lake.
- 2.19 Disposal of Waste Water from Concrete Mixing and Application Operations. Water that has been in contact with uncured concrete shall be contained in a sealed concrete washout facility or other impervious container and shall not be discharged to surface or ground waters.
- 2.20 Fluid Spill Response. In the event of an unexpected fluid spill, the equipment operator will immediately stop work and contain the escaping fluids and mitigate any further potential fluid loss. Any fluid that should leak onto the ground will be collected by placing absorbent pads and absorbent material. These used pads and material will then be placed in 55 gallon drums for disposal.
- 2.21 Spill Containment, Clean up and Discharge Notification. All construction activities performed in or near the stream shall have absorbent materials designated for spill containment and clean-up activities on-site for use in an accidental spill. In the event of a discharge, the Permittee shall immediately notify the California Emergency Management Agency at 1-800-852-7550 and

immediately initiate clean-up activities. DFW shall be notified by the Permittee and consulted regarding clean-up procedures.

## **EROSION AND SEDIMENT CONTROL**

- 2.22 Erosion Control Measures Required.** The project shall, at all times, feature adequate erosion and sediment control devices to prevent the degradation of water quality.
- 2.23 Installation and Maintenance of Best Management Practices.** Soils exposed by project operations shall be treated to prevent sediment runoff and transport. Erosion control measures shall include the proper installation and maintenance of approved Best Management Practices (BMPs) and may include applications of seed, certified weed-free straw, compost, fiber, stabilizing emulsion and mulch, or combinations thereof.
- 2.24 Soil Stabilization and Sediment Prevention.** Soils adjacent to the stream channel that are exposed by project operations shall be adequately stabilized when rainfall is reasonably expected during construction, and immediately upon completion of construction, to prevent the mobilization of such sediment into the stream channel or adjacent riparian areas. National Weather Service forecasts shall be monitored by the Permittee to determine the chance of precipitation.
- 2.25 Erosion Control Seeding.** Prior to the end of construction, all disturbed areas shall be stabilized and reseeded with a suitable cover crop (such as winter wheat) that will not persist on site. A regionally appropriate California native seed mix shall be applied during the first or second year to provide succession from the erosion control cover crop for the establishment of native plants. The native seed mix may also be seeded simultaneously with the non-persistent cover crop.
- 2.26 Spill Prevention Plan.** Temporary construction site BMPs shall be implemented using a Spill Prevention Plan (SPP) which will be kept on site, along with all materials and equipment necessary to implement the SPP should it be needed. The temporary BMPs are aimed at reducing erosion and subsequent sediment transport, and preventing accidental spills during construction and may include check dams, straw bales, hydraulic mulch, sediment traps, concrete washouts, fiber rolls, and temporary Hot Mix Asphalt (HMA) dikes.
- 2.27 Temporary Fill.** Temporary fills will be removed within 30 days after completion of work at a given location and/or prior to the onset of the rain season, and in accordance with the Section 401 and 404 Clean Water Act requirements. These areas will be returned to their pre-construction contours, and treated with

erosion control seed mix.

## **CONSTRUCTION DEWATERING AND INSTREAM STRUCTURES**

- 2.28 **Timing of Work.** All work within the stream channel or on the banks shall be performed when the stream is dry or at low flow. If water is present during construction the Permittee or its contractors may construct a clear water diversion to cleanly route water around the construction area. The clear water diversion shall be installed only during the time period, allowed for work in stream channels, as specified under § 2.1 unless approved with written authorization by CDFW. All work shall be performed in isolation from surface or subsurface flow. Weather conditions should be monitored daily, if the stream has a clear water diversion, and the diversion constructed should be sized to accommodate a minimum of the 25 year storm events; however, this provision does not supersede sub-section 2.30.
- 2.29 **Construction Materials.** Where water is present, a temporary clear water diversion shall be constructed to isolate the work area from flow. Temporary diversions may be constructed using berms of clean washed gravel, sand bags, K-rail, plastic sheeting, or a combination of these materials upstream from the work area. Flows will then be diverted into a temporary culvert, pipe, or conduit and released downstream from the work area.
- 2.30 **Diversion Sizing for Precipitation.** The clear water diversion shall be adequately sized to accommodate the full range of flows that may occur during the diversion period without overtopping into the work area and may require sizing above the 25 year storm event (see § 2.29). The Permittee is responsible for sizing the clear water diversion appropriately during the period of operation of the diversion.
- 2.31 **Protection of Watercourse Dependent Aquatic and Terrestrial Wildlife.** Dewatering shall be done in a manner that prevents the discharge of material that could be deleterious to fish, plant life, or bird life into any river, stream or lake and maintains adequate flows to downstream reaches during all times natural flow would have supported aquatic life. Such flows shall be of sufficient quality and quantity to support aquatic life above and below the diversion. Normal flows shall be restored to the affected stream immediately upon completion of work at that location.
- 2.32 **Minimization of Sediment and Turbidity.** Dewatering activities shall be

conducted in such a manner so as to minimize downstream sedimentation and turbidity, and to minimize channel disturbance to allow flows to run clear.

- 2.33 Removal of Structures Incapable of Tolerating High Flows. Temporary culverts, gravel berms or other structures and materials not designed to withstand high flows shall be removed from the channel prior to October 15<sup>th</sup> (see also § 2.1, 2.28, and 2.30).

### 3. Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement all measures listed in the Weitchpec Slipouts Revegetation Plan (WSRP), subject to final approval by CDFW. The draft version WSRP, dated January 2016, was reviewed for this Agreement and is incorporated by reference until the final WSRP is submitted and approved by CDFW.

#### 3.1 Riparian Restoration

Temporary Impacts On Site. Riparian vegetation on the project site occurs on the inlet and outlet sides of the stream channels at the three project locations. Temporary Impacts will be mitigated through the replanting of 23,958 ft<sup>2</sup> of riparian vegetation at Locations 1, 2, and 3 as illustrated on Revegetation Maps 1, 2, and 3 of the WSRP (draft version dated January 2016).

### 4. Reporting Measures

Permittee shall meet each reporting requirement described below.

- 4.1 Planting Plan, Monitoring, and Reporting. Permittee shall submit a proposed planting plan prior to completion of construction activities that consists of: (a) species to be planted; (b) type of reproductive element for each species (pole cuttings, seed, container stock, etc.); (c) justification for use of species; (d) quantity of plants to be planted; (e) proposed areas to be planted; (f) plan for planting and dates; and (g) plan to ensure that *Phytophthora tentaculata* is not transmitted to site, if container stock is used. The Permittee shall submit a map of the site and photographic monitoring of the planting site, with notations on the map of photographs and view, this information shall be included with the first year monitoring report. Annual reports/communications will be submitted to document the progress of replanted riparian and upland areas. Monitoring

reports will be submitted for years 1, 3, and 5. A brief summary of results and photos will be submitted via email for years 2 & 4. Performance monitoring, success criteria for survivorship, and plans for adaptive management shall be followed as itemized in the revised revegetation plan preliminarily dated April, 2016, with the final subject to review and approval by DFW.

## CONTACT INFORMATION

Any communication that Permittee or DFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFW specifies by written notice to the other.

### To Permittee:

Mr. Frank Demling  
Project Manager  
Department of Transportation  
1656 Union Street  
Eureka, CA 95501  
Fax: (707) 445-7810  
Email: [frank.demling@dot.ca.gov](mailto:frank.demling@dot.ca.gov)  
cc: [denise.walker-brown@dot.ca.gov](mailto:denise.walker-brown@dot.ca.gov)

### To DFW:

Department of Fish and Wildlife  
Northern Region  
601 Locust Street  
Redding, CA 96001  
Attn: Lake and Streambed Alteration Program – Dr. Richard Lis  
Notification #1600-2016-0024-R1  
Fax: (530) 225-2267  
Email: [richard.lis@wildlife.ca.gov](mailto:richard.lis@wildlife.ca.gov)

## LIABILITY

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute DFW's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

## **SUSPENSION AND REVOCATION**

DFW may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before DFW suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before DFW suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFW to issue the notice.

## **ENFORCEMENT**

Nothing in the Agreement precludes DFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects DFW's enforcement authority or that of its enforcement personnel.

## **OTHER LEGAL OBLIGATIONS**

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 et seq. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution),

5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

## **AMENDMENT**

DFW may amend the Agreement at any time during its term if DFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFW and Permittee. To request an amendment, Permittee shall submit to DFW a completed DFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **TRANSFER AND ASSIGNMENT**

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to DFW a completed DFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **EXTENSIONS**

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to DFW a completed DFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFW shall process the extension request in

accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)).

## **EFFECTIVE DATE**

The Agreement becomes effective on the date of DFW's signature, which shall be: 1) after Permittee's signature; 2) after DFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at: [http://www.DFW.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.DFW.ca.gov/habcon/ceqa/ceqa_changes.html).

## **TERM**

This Agreement shall expire on May 10, 2021, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a) (2) requires.

## **AUTHORITY**

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

## **AUTHORIZATION**

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify DFW in accordance with FGC section 1602.

## **CONCURRENCE**

The undersigned accepts and agrees to comply with all provisions contained herein.

**FOR DEPARTMENT OF TRANSPORTATION**

  
\_\_\_\_\_  
Frank Demling  
Project Manager

5-4-2016  
Date

**FOR DEPARTMENT OF FISH AND WILDLIFE**

  
\_\_\_\_\_  
Michael R. Harris  
Habitat Conservation Planning Supervisor

5-16-16  
Date

Prepared by: Richard Lis, Ph.D.  
Senior Environmental Scientist--Specialist

## **AGREEMENTS**

Tribal Employment Rights Ordinance (TERO) Requirements

Memorandum of Understanding (MOU) Yurok Tribe TERO  
TERO Highway Construction permit (THCP) Application

**ATTACHMENT A**

**Project-Specific Special Provisions For Yurok Tribe TERO 2016-04 MOU**

**SPECIAL NOTICE:**

- This project includes Tribal Employment Rights Ordinance (TERO) requirements. See section 5-1.20E and 8-1.04C for TERO submittal requirements.

**SSP 2-1.06B SUPPLEMENTAL PROJECT INFORMATION**

The Department makes the following supplemental project information available:

**Supplemental Project Information**

Means	Description
Included in <i>Information Handout</i>	Yurok Tribe TERO Memorandum of Understanding (MOU) with TERO Highway Construction Permit (THCP) Application

**INFORMATION HANDOUT:**

Yurok Tribe TERO Requirements Information Handout contains:

1. Signed one-time MOU between the Yurok Tribe and the Department.
2. Attachment A project-specific TERO special provisions.
3. Attachment B TERO Highway Construction Permit Application (THCP).

**SSP 5-1.20E Tribal Employment Rights Ordinance Requirements:**

Complete the Yurok Tribe TERO Highway Construction Permit (THCP) Application included in the *Information Handout*. Within 5 days after Contract approval, submit the completed application to the Tribe and a copy of the submitted application to the Engineer.

Submit the executed THCP to the Engineer within 10 days after you receive it from the Tribe.

**SSP 8-1.04C:**

Use a minimum 45-day delayed start after contract approval.

Do not start job site activities until the Department authorizes or accepts your submittal for:

Executed Yurok Tribe TERO Highway Construction Permit (THCP)

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

Copy of the Yurok Tribe TERO Highway Construction Permit (THCP) Application submitted to the Tribe.

**ATTACHMENT B**  
TERO Highway Construction Permit (THCP)

**YUROK TRIBE**  
**TRIBAL EMPLOYMENT RIGHTS OFFICE**  
**MEMORANDUM ON COMPLYING WITH TRIBAL AND FEDERAL EMPLOYMENT LAWS**



The Tribal Employment Rights Office (TERO), on the Yurok Indian Reservation, has been implemented to assist employers, contractors, and/or subcontractors towards meeting the required rules and regulations of the Yurok Tribal Council, and the employment laws of the U.S. Government.

**TERO HIGHWAY CONSTRUCTION PERMIT APPLICATION (THCP)**

1. State Contractor (Employer) shall file a Yurok TERO Labor Force Projection Form with the TERO office for themselves and all subcontractors (Employer) listed on State contract bid form within five (5) days after contract approval.

2. If available, qualified Indians must be hired in preference to non-Indians. Employer shall neither recruit nor hire any non-Indians for any covered position until the Yurok TERO has provided written notice that no qualified Indians are available to fill such covered position. Covered positions are defined in the Yurok TERO Policy. Each waiver issued is only for that particular position/task and the employee cannot be transferred to another position once that job is done.

3. The Yurok TERO maintains a Indian Skills-Bank to assist Employers to meet the Indian Preference requirements of the TERO Policy of the Yurok Tribe. Please note: "Core Crew" is key employees of the firm who have worked continuously for the firm for many seasons and who were not recently hired for this particular project. (Possessing records of past employment as proof as a supervisor or foreman).

PLEASE RETURN COMPLETED LABOR FORCE PROJECTION FORMS TO:

Don Barnes, TERO Officer  
Yurok Tribe  
190 Klamath Blvd.  
Klamath, CA 95548  
(707) 482-1350

ATTACHMENT B  
TERO Highway Construction Permit (THCP)

YUROK TRIBE  
TRIBAL EMPLOYMENT RIGHTS OFFICE  
LABOR FORCE PROJECTION FORM



Prime employer and all subcontractors are required to submit the following information to the TERO:

Employer/Supplier Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
City, State, and Zip Code: \_\_\_\_\_  
Phone Number \_\_\_\_\_  
Cell # \_\_\_\_\_  
Contact: \_\_\_\_\_  
Contract Number: \_\_\_\_\_  
Amount of Contract: \_\_\_\_\_ \$ \_\_\_\_\_  
Contracting With: \_\_\_\_\_

THIS IS AN AGREEMENT BETWEEN THE YUROK TRIBE AND EMPLOYER FOR CONDUCTING EMPLOYMENT ACTIVITY WITHIN THE EXTERIOR BOUNDARIES OF THE YUROK INDIAN RESERVATION AND YUROK TRIBAL "Lands".

**EMPLOYER** hereby agrees to comply with the requirements and procedures for the recruitment of viable Indian applicants through TERO.

TERO shall receive notice, in the form of copies of bid forms by awarded prime Employer seeking bids of all sub-contract work to be conducted on the Yurok Indian Reservation. Notice shall be made reasonably in advance of contract approval, but not later than five (5) days after approval.

The above named employer understands that they are required to comply with the portions of the Yurok Tribal Councils TERO Ordinance (adopted October 22, 2003) listed in the Yurok Tribe/Caltrans TERO MOU (dated ).

**COMPLIANCE INSPECTIONS:** The TERO Officer or other designated staff shall make periodic or site visitations for assurance to all involved parties that employment rules are adhered to.

**MAINTAINING EMPLOYMENT RECORDS:** Employer shall maintain accurate employment records on all employees and all applicants for employment; regardless of length and category or employment, hired, fired, or laid-off. The files shall reflect: name, address and employment category for which applicant performed or applied to perform. If applicant was contacted but

not hired, hired and fired, all data should reflect action taken by that firm. Such informational records shall be made available to the TERO Officer, upon reasonable notice.

**ASSISTANCE:** If an Employer deems that an Indian employee's performance is such that he or she is jeopardizing and endangering job loss, suspension, or termination, Employer may contact TERO to provide assistance toward resolving of that issue.

**EMPLOYMENT POLICIES AND PROCEDURES:** It is further understood that Employer recognizes that its operations are taking place within a unique cultural setting on the Yurok Indian Reservation. Accordingly, all firms in conjunction with the TERO Officer should consider seriously Tribal Holidays and ceremonial customs; and to accommodate those Indian employees requesting certain leave of absences for religious purposes.

*\*This form must be completed and filed with the TERO. Attach additional sheets if necessary.*

Briefly describe the basic tasks and types of work to be performed:

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Please list types of skills and categories which will be required towards performing said contract:

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

Indian Preference shall be accorded at every Tier Level. Please list the names and positions of your Core Crew. (Key staff). (Core Crew members are the vitally needed Supervisors that you depend on every day). All other persons needed on this job will go through the TERO Skills Bank.

NAME	JOB TITLE
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	

**Note:**

*(Please utilize as many sheets as necessary for explaining your on-site employment related projection)*

# MEMORANDUM OF UNDERSTANDING

## Tribal Employment Rights Ordinance

Caltrans Contract 01-0B440

Repair Slipouts

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The Yurok Tribe (**Tribe**) and the State of California Department of Transportation (**Caltrans**), in order to coordinate and carry out their respective functions and duties regarding Indian Employment Preference on State highway construction projects on lands within the Yurok Tribe reservation (**Tribal Lands**), do hereby enter into this Memorandum of Understanding (**MOU**).

This **MOU** constitutes a guide to the respective intentions, obligations, and policies of the **Tribe** and **Caltrans** in entering into this agreement. It is not intended to be used as a sole basis for authorizing funding, nor is it a legally binding contract upon either party.

Contract No. Project ID	Project County- Route- Postmile	Work Description	Yurok Tribal Lands	Yurok IRR Inventory
01-0B440 0112000128	Hum-169- 26.40/29.80	Repair slipouts	Hum-169- All	Hum-169-All

### I. INDIAN EMPLOYMENT PREFERENCE AND TERO FEE

#### A. Recitals

1. Section 122 of the Surface Transportation and Uniform Relocation Assistance Act of 1987, Pub. L. 100-17, 23 USC ss. 140(d), recognizes the establishment of Indian Employment Preferences in the Federal Aid Highway Program.
2. The **Tribe** has enacted certain tribal employment rights policies included within the Yurok Tribe **Tribal Employment Rights Ordinance** establishing a tribal employment rights function and mandating Indian Employment Preferences on State construction projects and in other forms of employment within the Reservation.
3. The parties hereto recognize that Caltrans shall employ the services of one or more independent contractors in order to accomplish all or some of the activities necessary for State highway construction on **Tribal Lands**.
4. **Caltrans** and the **Tribe** desire to promote Indian employment by

# MEMORANDUM OF UNDERSTANDING

## Tribal Employment Rights Ordinance

Caltrans Contract 01-0B440

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- a) applying Indian Employment Preferences to the State's contractors for highway work conducted on **Tribal Lands** or on any State highway included in the **Tribe's** Indian Reservation Road (IRR) Inventory when a portion of the project is on Tribal Lands, and
  - b) establishing a mechanism to ensure that the **Tribe** receives TERO Fees, of 3% of the contract award amount, for the portion of the project that is on **Tribal Lands**.
5. The parties desire to clarify the rights and obligations of the **Tribe, Caltrans,** and prospective bidders and contractors who may perform work on **Tribal Lands** for State highway construction contracts.

### B. Statement Of Intent

1. **Caltrans** shall inform prospective bidders of the Tribal, State, and Federal laws with respect to Indian Employment Preferences by inserting provisions (Attachment A) in its information to prospective bidders. These provisions shall become part of the State highway construction contract. The provisions shall require
  - a) submittal of TERO Highway Contract Permit (THCP) to Tribe within 5 days after Contract Approval
  - b) a 45-day delayed start to allow for Contractor submittals to and from Tribe and Contractor submittal of completed THCP to Engineer
2. **Caltrans** shall not allow the contractor to begin work until the contractor has obtained, from the **Tribe,** a TERO Highway Contract Permit (Attachment B) from the TERO officer of the **Tribe.**
3. The TERO Officer of the **Tribe** shall work with Caltrans and Caltrans' contractor to process the TCHP in a timely manner and ensure that there is no delay in either beginning work or in providing qualified candidates to meet the contractor's personnel needs. The Tribe shall return the completed THCP to the contractor within 30 days of receiving the application.
4. Immediately after Contract Approval, **Caltrans** shall provide the TERO officer of the Tribe with all documentation necessary for the Tribe to properly

# MEMORANDUM OF UNDERSTANDING

## Tribal Employment Rights Ordinance

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invoice Caltrans for the TERO Fee. The **Tribe** shall invoice **Caltrans** for the TERO Fee, 3% of the total bid amount, within 15 days after issuing the THCP. Upon receipt of an invoice for the TERO Fee, Caltrans shall forward the invoice to Accounting within 7 days and make prompt payment of the TERO Fee to the Tribe.

5. **Caltrans** and the **Tribe** shall make a reasonable effort to conduct joint investigations and share information. Nothing in this **MOU** shall be construed to restrict the authority of the **Tribe**, either to initiate enforcement actions in the Tribal Court or to amend Tribal laws.

## II. TERO PROVISIONS – Pertaining to Contracted State Highway Work

Caltrans Deputy Directive DD-74-R2, Tribal Employments Rights, directs the Caltrans District Director to include in TERO MOUs the provision the Tribes TERO Ordinance that pertain to contracted State highway work.

**Yurok Tribe**  
**Tribal Employment Right Ordinance**  
**Approved: February 6, 2014**

## YUROK TRIBAL EMPLOYMENT RIGHTS OFFICE ORDINANCE

*Pursuant to its authority under Article IV, Section 5 of the Yurok Constitution, as certified on November 24, 1993, the Yurok Tribal Council hereby enacts the following ordinance establishing a Tribal Employment Rights Office to provide for the social and economic well-being of Yurok Tribal members:*

### GENERAL PROVISIONS

#### SECTION 4001. Short Title

This ordinance shall be referred to as the “Yurok Tribal Employment Rights Office Ordinance” or “Yurok TERO Ordinance.”

#### SECTION 4002. Findings

Indians have unique and special employment rights, and are entitled to the protection of laws established by the federal government to combat employment discrimination on or near Indian reservations, including the following:

- (a) Title VII of the Civil Rights Act, including section 703(i), which makes Indian and Tribal member preference in employment possible.

## MEMORANDUM OF UNDERSTANDING

### Tribal Employment Rights Ordinance

Caltrans Contract 01-0B440

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- (b) Executive Order 11246, enforced by the Office of Federal Contract Compliance Programs and exempting from the general requirements contractors extending preference in employment for Indians living on or near an Indian Reservation, and which further prohibits discrimination among Indians as a group on the basis of religion, sex, or tribal affiliation. Executive Order 11246 applies only to employers working under federal contracts.
  - (c) The Indian Self-Determination Act, Section 7(b) of Public Law 93-638, which provides for Indian preference in employment, training, and contracting or subcontracting on all contracts negotiated or let on behalf of an Indian Tribe.
  - (d) The Indian Civil Rights Act of 1968, which prohibits Indian tribal governments from enacting or enforcing laws that violate certain individual rights similar to those individual rights guaranteed under the Bill of Rights of the United States Constitution.

#### SECTION 4003. Purpose

The Yurok Tribal Council is enacting this ordinance to build the workforce capacity of Yurok Tribal members and Indian people and to help provide for their health and economic well-being.

The Yurok Tribal Council operates under a constitutional mandate to protect the sovereignty of the Yurok Tribe and to provide for the cultural, social, and economic well-being of current and future Yurok tribal members. In fulfillment of its duty to guarantee the unique employment rights of all Yurok Tribal members and other Indians within its jurisdiction, the Yurok Tribal Council hereby reaffirms and reestablishes the TERO and establishes standards and procedural guidelines with the following purposes:

- (a) To prevent employment related discrimination against Indians;
- (b) To ensure compliance with the ordinance that is intended to give preference in employment (. . N/A . . )
- (c) To maximize utilization of Indian workers in all employment opportunities on Yurok lands;
- (d) To ensure the Indians seeking employment on Yurok lands are trained and equipped to enter the workforce and maintain employment of their choosing;
- (e) To ensure due process for all individuals affected by the application of this ordinance's requirements; and
- (f) To provide clarity to Indian workers, covered employers, and contractors regarding TERO requirements and greater efficiency in the

**MEMORANDUM OF UNDERSTANDING**

**Tribal Employment Rights Ordinance**

Caltrans Contract 01-0B440

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TERO process.

**SECTION 4004. Scope**

This ordinance shall apply to all covered employers and contractors on Yurok lands. Additionally, this ordinance shall apply to all projects on or off the Yurok Reservation involving Tribal funds and initiated or taken over by the Yurok Tribe or a Tribal entity.

**SECTION 4005. Sovereign Immunity Preserved**

Except as judicial review is authorized in this ordinance, and in accordance with the Yurok Tribe's Supreme Ordinance, nothing in this ordinance shall be interpreted as a waiver of the Tribe's sovereign immunity from unconsented lawsuit, or as authorization for a claim for monetary damages against the Tribe.

**SECTION 4006. Effective Date**

This ordinance shall take effect immediately after its adoption by Council.

<i>Commentary:</i> N/A
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**SECTION 4007. N/A**

**SECTION 4008. Severability**

If any provision of this ordinance or its application to any person or circumstance is held invalid, the remainder of the ordinance or application of its provisions to other persons or circumstances shall not be affected, and to this end, the provisions of this ordinance are severable.

**SECTION 4009. Definitions**

- (a) *Contractor* means a covered employer who undertakes a contract or subcontract for supplies, services, labor, or materials where:

N/A

<i>Commentary:</i> N/A
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- (b) *Covered Employer* means:

- (1) N/A
- (2) N/A
- (3) The California Department of Transportation (. . N/A . .)
- (4) N/A

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## Tribal Employment Rights Ordinance

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<i>Commentary:</i> N/A
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- (c) *Council or Tribal Council* means the Yurok Tribal Council.
- (d) *Employee* means a person working for remuneration on Yurok lands in the service of another, including, but not limited to, independent contractors and regular and temporary employees.
- (e) *Indian* means a person enrolled in a federally recognized Indian tribe.
- (f) *Indian Firm* means an entity that has been certified as an Indian firm by the TERO Officer.
- (g) *Indian Preference Plan* means a negotiated agreement between the TERO Officer and a covered employer detailing Indian preference goals and incorporated into the TERO Permit.
- (h) *Key Employee* means an employee of a covered employer in a managerial or project supervisory position, or who performs an essential job function as identified on a case by case basis by TERO and prior to issuing a TERO Permit.
- (i) *Reservation or Yurok Reservation* means all lands within the exterior boundaries of the Yurok Reservation.
- (j) *TERO* means the Tribal Employment Rights Office.
- (k) *TERO Permit* means a permit issued to and signed by a covered employer after negotiation with the TERO Officer of an acceptable Indian Preference Plan.
- (l) *Tier* means the Indian preference priorities for eligible Indians as established by this ordinance.
- (m) *Tribal Court* means the Yurok Tribal court, which was established by the Yurok Tribe Judicial Branch Ordinance.
- (n) *Trust Lands* means all land the fee title to which is owned by the United States of America and held in trust for the benefit of the Tribe or a Tribal member.
- (o) *Tribal Funds* means funds of the Yurok Tribe or a Tribal entity and includes grant funds received by the Tribe or a Tribal entity.
- (p) *Tribal Entity* means the Tribe and any agency, entity, subdivision, instrumentality, or non-profit or for-profit corporation that acts at the direction of Council and includes but is not limited to the Yurok Tribe, the Yurok Indian Housing Authority, the Yurok Economic Development

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## Tribal Employment Rights Ordinance

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Corporation, the Redwood Hotel Casino, and Hoh-kue-moh.

- (q) *Tribal Member* means a duly enrolled member of the Yurok Tribe listed on the Yurok Tribal Membership Roll.
- (r) *Tribe* means the Yurok Tribe acting at the direction of Council.
- (s) *Yurok Ancestral Territory* means those ancestral lands described in the Yurok Constitution Article I, Section I.
- (t) *Yurok Lands* means all lands within the Reservation, trust lands, and lands owned by the Tribe or a Tribal entity.

### CHAPTER 1. TRIBAL EMPLOYMENT RIGHTS OFFICE

#### SECTION 4101. Establishment and Organization of TERO

Tribal Council hereby reaffirms and reestablishes a TERO to enforce Yurok and Indian preference with all enterprises, businesses, and projects operated or undertaken on Yurok lands. TERO shall consist of a TERO Officer and such other staff as may be determined by the Tribe's Executive Office. The Executive Office is vested with full supervisory authority over TERO.

#### SECTION 4102. Duties of TERO Officer

The TERO Officer shall oversee implementation and enforcement of this ordinance and day-to-day operations of TERO. (N/A)

N/A

#### SECTION 4103. Powers and Authorities of TERO Officer

The TERO Officer shall have the following powers and authorities:

- (a) N/A
- (b) N/A
- (c) N/A
- (d) Conduct audits, investigations, and inspections upon its own initiative or allegation ;
- (e) Issue notice of non-compliance, warnings, and citations;
- (f) Conduct hearings;
- (g) Petition the Tribal Court for such orders as are necessary and appropriate to enforce decisions and sanctions imposed under this ordinance;
- (h) Subpoena documents and witnesses;

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## Tribal Employment Rights Ordinance

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- (i) Require covered employers to submit reports, including labor force and payroll reports;
  - (j) Issue orders;
  - (k) Impose fines;
  - (l) Suspend or terminate a covered employer's operation;
  - (m) Certify eligible Indians and Indian firms;
  - (n) Revoke Indian firm certifications and permits;
  - (o) Monitor employers for compliance;
  - (p) Restrict or prevent hiring of non-Tribal members or non-Indians;
  - (q) Develop numerical hiring goals and timetables for a covered employer;
  - (r) Conduct or facilitate training programs and job fairs to meet the purposes of this ordinance;
  - (s) Require Indians seeking employment (. . . N/A . . .) to participate in TERO training programs;
  - (t) Require covered employers to pay back wages to an aggrieved employee;
  - (u) Enforce this ordinance; and
  - (v) Take any action necessary to achieve the purposes and goals of this ordinance.

### SECTION 4104. Inspections

The TERO Officer shall have the authority to make on-site inspections during regular working hours and in accordance with job site safety standards in order to monitor compliance with this ordinance. The TERO Officer or authorized representative shall have the right to inspect and copy all relevant records of a covered employer, to interview or speak to workers, and otherwise conduct investigations on the job site. All information collected shall be kept confidential unless or until disclosure is required during a hearing or appeal under this ordinance or ordered as part of any federal or tribal judicial or administrative proceeding.

### CHAPTER 2. OVERSIGHT BY TRIBAL COUNCIL

SECTION 4201. N/A

SECTION 4202. N/A

<p><i>Commentary:</i> This ordinance does not create a right of action in Tribal Court for individuals who are dissatisfied with TERO. The Tribal Court does not have</p>
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jurisdiction to hear civil complaints by an individual, employee, or covered employer against TERO. These types of complaints may include an allegation that TERO is not conforming to this ordinance, that TERO should have found a violation by a covered employer, that TERO failed to properly investigate an alleged violation, or that TERO inappropriately determined that an Indian firm met threshold technical qualifications. All such complaints should be directed to the Executive Office for review.

**CHAPTER 3. INDIAN PREFERENCE IN EMPLOYMENT**

**SECTION 4301. Indian Preference in Employment**

All covered employers shall give absolute preference to qualified Indians in all phases of employment and training, including recruitment, hiring, upgrade, promotion, transfer, rate of pay, retention, and selection for training or apprenticeship.

Indian preference in employment means that if a qualified Indian is available, that person will be given preference over a qualified non-Indian in any phase of employment. A covered employer may not refuse to employ an Indian on the basis that a non-Indian is more qualified, so long as the Indian satisfies the threshold requirements for that occupational classification.

**SECTION 4302. Covered Positions**

Indian preference shall apply to all occupational classifications, except for key employees of non-Tribal entities. The Yurok Tribe and Tribal entities are required to apply Indian preference to the hiring of key employees.

N/A

**SECTION 4303. Qualified Indians**

An Indian shall be deemed qualified for employment in a position if that person meets the minimum requirements for such position. No employer may utilize any employment criterion that is not legitimately related to the performance of the position.

**SECTION 4304. Eligible Indians**

(a) (N/A)

(b) (N/A)

(1) Indians living on or near the Yurok Reservation; and

## MEMORANDUM OF UNDERSTANDING

### Tribal Employment Rights Ordinance

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(2) Other Indians.

*Commentary:* Subsection (b) is intended to conform with Office of Federal Contract Compliance Program regulations, 41 C.F.R. § 60-1.5(7), which permits federal contractors to extend a preference to Indians living on or near an Indian Reservation. Those regulations, however, prohibit contractors when extending an Indian preference to discriminate among Indians on the basis of region, sex, or tribal affiliation. The California Department of Transportation as a covered employer shall apply the tier priorities specified in subsection (b). For purposes of subsection (b), the word *near* means all that area where a person seeking employment could reasonably be expected to commute to and from in the course of a work day.

#### SECTION 4305. Proof of Yurok or Indian Eligibility

- (a) N/A
- (b) N/A
- (c) Indian. A person claiming that he or she is an Indian shall have the burden to prove membership in a federally recognized tribe. To prove membership in a federally recognized tribe, TERO may require a person to submit the following:
  - (1) Certification or verification from a federally recognized tribe or the U.S. Bureau of Indian Affairs indicating that a person is a member of a federally recognized tribe,
  - (2) A tribal membership card, or
  - (3) Other documentation satisfactory to the TERO Officer.

#### SECTION 4306. Tribal Skills Bank

The TERO Officer shall manage a database of Yurok Tribal members and other Indians seeking employment. This database shall be known as the Tribal Skills Bank. Tribal Skills Bank records for such individuals may include name and contact information, membership in a federally recognized tribe, occupational classifications for which an individual meets minimum qualifications, training or additional qualifications, training or qualification needs, and such other information as necessary or useful to achieve the goals of this ordinance. It shall be the individual's responsibility to ensure that the Tribal Skills Bank contact information for that person is accurate and up-to-date.

#### SECTION 4307. TERO Card

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In order to facilitate Indian employment, a Yurok Tribal member who has met Indian eligibility requirements may apply to TERO for a TERO Card. A TERO Card shall indicate the person's skilled labor occupational classifications. A TERO card constitutes presumptive evidence that a person is a Tribal member with the highest tier priority. A covered employer may hire such Tribal member for an available position without being required to notify TERO prior to hiring as otherwise required by this ordinance. A TERO Card shall expire no later than two years after issuance, but may be renewed by the cardholder prior to its expiration for an additional two-year period.

### CHAPTER 4. INDIAN PREFERENCE IN CONTRACTING

SECTION 4401. N/A

SECTION 4402. N/A

SECTION 4403. N/A

*Commentary:* N/A

SECTION 4404. N/A

*Commentary:* N/A

### SECTION 4405. Specific Indian Preference Obligations of Contractors

In addition to the requirements of all covered employers, contractors shall have the following obligations:

- (a) Indian Preference Plan. Upon being selected for a contract and prior to commencing work, a contractor shall negotiate an Indian Preference Plan with the TERO Officer. The Indian Preference Plan shall include key employees, anticipated project occupational classifications, and Indian preference goals for the general contract and any subcontracts. For subcontracts, the contractor shall indicate proposed subcontractors (. . . N/A . . .)
- (b) Labor Force Reports. Upon commencing work, to submit to TERO weekly Labor Force Reports, in a form acceptable to TERO, indicating the number of Indian and non-Indian employees, pay rates, fringe benefits paid, hires, terminations, layoffs, promotions, pay increases, reprimands, and results in achieving Indian preference goals. TERO maintains discretion to require such reports on a more or less frequent basis and to require additional information.

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- (c) Payroll Reports. Upon request by TERO, to submit to TERO weekly Payroll Reporting Forms, in the format then in use by the California Department of Industrial Relations, for all employees. TERO may also require submission of cancelled payroll checks and check stubs.
  - (d) Non-responsive Bidder. A contractor who fails to secure a TERO Permit within a reasonable amount of time as determined by the TERO Officer shall be considered a non-responsive bidder for the purpose of awarding the contract.
  - (e) Primary Responsibility for TERO Compliance. A contractor shall have initial and primary responsibility for ensuring that it and all of its subcontractors comply with these requirements. A contractor may be held jointly and severally liable for violations of this ordinance by its subcontractors.

### SECTION 4406. Subcontractors

The Indian preference requirements contained in this ordinance shall be binding on all subcontractors of covered employers, regardless of a subcontractor's size, and shall be deemed a part of all resulting subcontract specifications. A subcontractor may be held liable for violations of this ordinance.

*Commentary:* For large construction projects, subcontractors should meet and negotiate their own Indian Preference Plan with the TERO Officer. The subcontractor is to be treated in the same manner as a contractor under this ordinance. Both the subcontractor and the contractor can be held jointly and severally liable for any violation of the subcontractor's TERO Permit or Indian Preference Plan and both may be subject to sanctions, including a stop work order or monetary civil penalty. Because the Tribe may not be the contracting entity with the subcontractor, the contractor is encouraged to work cooperatively with TERO to ensure the subcontractor meets compliance obligations.

SECTION 4407. N/A

SECTION 4408. N/A

## CHAPTER 5. IMPLEMENTATION OF INDIAN PREFERENCE IN CONTRACTING

### SECTION 4501. Indian Preference Plan

No contractor may commence work until the contractor has submitted to TERO an Indian Preference Plan, negotiated with and approved by the TERO Officer, setting forth how the contractor intends to meet the contractor's obligations under this

# MEMORANDUM OF UNDERSTANDING

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ordinance. The Indian Preference Plan should list by occupational classification all key and non-key employee positions to be used by the contractor.

For multi-year contracts, the Indian Preference Plan shall be reviewed at least annually, or sooner at the request of a contractor or the discretion of the TERO Officer, and shall be revised to reflect changes in the number of Tribal members or Indians available or in the contractor's hiring plans and practices.

### **SECTION 4502. Indian Preference Goals for Indian Preference Plan**

The TERO Officer shall negotiate with a contractor an Indian Preference Plan establishing the minimum number of qualified Tribal members and Indians to be employed by the contractor. The TERO Officer may negotiate with the contractor for trainee or apprentice positions not otherwise required under the contract, but such positions shall be funded by TERO or other Tribal resources.

Goals will be established for all non-key employee occupational classifications to be used by the covered employer. The goals shall be expressed as:

- (a) Project hours of Tribal member employment as a percentage of the total hours of employment by the covered employer for the occupational classification involved; and
- (b) Numerical goals based on surveys of the available Tribal member and Indian labor forces and projections of employment opportunities for each occupational classification.

*Commentary:* The Tribe does not intend to use strict numerical goals across all contracts. Instead, the TERO Officer shall negotiate an Indian Preference Plan on a contract by contract basis with contractors to ensure a sufficient number of Indians are employed to meet the intent and requirements of this ordinance.

### **SECTION 4503. TERO Permit**

No contractor may commence work until the contractor has received a TERO Permit.

The TERO Officer shall issue a TERO Permit to contractors upon approval of a negotiated Indian Preference Plan. The TERO Permit shall incorporate the terms of the Indian Preference Plan and shall constitute a consensual contractual relationship between the Yurok Tribe and the contractor.

### **SECTION 4504. Ongoing TERO Compliance; Filling Available Positions**

Once work has commenced under a valid TERO Permit and if a position becomes available, a contractor shall not hire a non-Indian unless the contractor makes reasonable efforts to hire a qualified Indian for that position.

- (a) TERO Card Hiring. A contractor may hire immediately a Tribal member

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who presents the contractor with a valid TERO Card. The contractor shall notify TERO that a Tribal member has been hired for the available position within 2 days of hiring and shall submit to TERO a copy of the TERO Card.

- (b) Reasonable Efforts To Hire Qualified Indian. A contractor is presumed to have made reasonable efforts if all of the following conditions are satisfied:
- (1) The contractor notifies TERO in writing of the available position.
  - (2) The contractor requests a list from TERO of qualified Indians for that classification.
  - (3) The contractor is unable to identify a qualified Indian available for the position and:
    - (A) the contractor submits documents to TERO showing reasonable efforts to identify and contact qualified Indians for that classification, which may include call logs, job fair notices, public notices in local newspapers and tribal offices, online job postings, and evidence that TERO failed to respond to the list request within 5 business days or 2 business days for a construction contract; or
    - (B) TERO certifies in writing that no qualified Indian is available to fill that position.
  - (4) If no qualified Indian is available for the position, the contractor notifies TERO in writing of the non-Indian replacement and deviation from the Indian Preference Plan.
- (c) Ensuring Reasonable Efforts. The TERO Officer maintains discretion to seek additional documentation of reasonable efforts by a contractor, and to order an employee removed if a contractor does not substantially comply with this section.
- (d) Emergency Waiver. The TERO Officer may waive or modify the requirements of subsection (b) for a position if there is clear indication that:
- (1) the process would impose an unreasonable burden on a contractor for a project, or
  - (2) time is of the essence in completing the work and it is unreasonable to request full compliance.

*Commentary*: Subsection (c) recognizes that certain contracts, particularly construction contracts, may incur substantial costs if contract work cannot proceed in a timely manner. The TERO Officer may waive requirements of subsection (b) when necessary to ensure timely completion of a project or to avoid unnecessary or substantial costs due to a delay in hiring. The TERO Officer may impose certain conditions on the waiver, permitting immediate hiring on a

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temporary basis but also requiring that the contractor continue its efforts to hire a qualified Indian for the position.

SECTION 4505. N/A

SECTION 4506. N/A

SECTION 4507. **Layoffs or Reductions in Workforce**

In all layoffs and reductions in workforce for a contractor, no Yurok Tribal member or Indian shall be terminated if a non-Indian worker in the same occupational classification is still employed. A non-Indian shall be terminated first, and eligible Indians shall be terminated by tier.

SECTION 4508. **Promotions**

Each contractor shall give Yurok Tribal members and Indians preferential consideration for all promotion opportunities and shall encourage Indians to seek such opportunities. For each promotion, supervisory position, or managerial position filled by a non-Indian, the contractor shall file a report with the TERO Officer stating what efforts were made to inform Indian workers about the position, what Indians, if any, applied for the position, and if an Indian was not chosen, the reasons therefore.

SECTION 4509. **Employment Procedures**

The contractor may use whatever employment process it chooses, provided that it makes reasonable efforts to hire qualified Indians and a non-Indian person will not be hired if there is a qualified Indian available. The employer may obtain qualified Indian referrals from TERO and other sources. In all cases, the contractor is required to notify TERO of all jobs planned for a project. Except for key employees, which nevertheless must be identified in an Indian Preference Plan, all positions existing or planned to exist on the Reservation are subject to Indian preference requirements.

A contractor may not use job qualifications, criteria, or requirements which have a tendency to bar Indians from employment unless the same are required by business necessity. It is the employer's burden to prove business necessity.

*Commentary:* A contractor is not required to use a specific employment process. Section 4504(b) provides guidelines for what would constitute reasonable efforts to fill a position that opens after work has begun. Those guidelines may also be used to show reasonable efforts for purposes of this section. However, the fact that TERO failed to respond to a list request within the time identified in section 4504(b)(3) does not necessarily excuse the contractor from hiring a qualified Indian since timeliness may be less of a concern for initial hiring than filling a position that opens while work is ongoing.

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**SECTION 4510. Prohibition Against Retaliation**

If a contractor fires, lays off, penalizes, attempts to intimidate, or otherwise retaliates in any manner toward a person who utilizes the individual complaint procedure or exercises any right provided in this ordinance, the contractor shall be subject to sanctions provided for in this ordinance.

**CHAPTER 6. TERO FEE IN CONTRACTING**

**SECTION 4601. TERO Fee See TERO MOU Section B. Statement of Intent #4**

<i>Commentary:</i> N/A
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**SECTION 4602. TERO Fee Collection See TERO MOU Section B. Statement of Intent #4**

**SECTION 4603. N/A**

**SECTION 4604. N/A**

**CHAPTER 7. HEARINGS AND APPEALS**

**SECTION 4701. Filing Procedure for Alleged Violation**

Any person who believes that a covered employer has failed to comply with this ordinance, or who believes that they have been discriminated against by a covered employer because they are Indian, may file a written allegation of that violation with TERO. The filer shall be responsible for providing TERO with sufficient evidence of the alleged violation to allow for an appropriate investigation by TERO.

**SECTION 4702. Investigation by TERO Officer**

Upon the TERO Officer's own allegation or upon written allegation of a violation, including violation of an Indian Preference Plan, the TERO Officer shall ensure a prompt and thorough investigation of the alleged violation. The TERO Officer shall seek to achieve an informal settlement of the alleged violation. The TERO Officer shall monthly report all alleged violations and their settlement, if any, to the Executive Office.

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#### SECTION 4703. Issuance of Citation

- (a) Notice of Non-Compliance. If the TERO Officer determines that a violation of the ordinance exists and an informal settlement cannot be achieved, the TERO Officer shall issue a notice of non-compliance to the covered employer. This notice shall specify the nature of the violation and direct that the violation be corrected within 3 days or sooner where warranted.
- (b) Citation. If the violation is not corrected within the time specified, the TERO Officer shall issue a written citation to the covered employer that includes the following:
  - (1) The name of the violator;
  - (2) The signature of the TERO Officer or an authorized representative;
  - (3) The name and section number of the ordinance provision violated;
  - (4) A brief summary of the facts constituting the violation; and
  - (5) A time and place the covered employer must appear to answer to the violation at a TERO Officer hearing.
- (c) Imposition of Immediate Sanctions. Once the time specified in the notice of non-compliance to correct a violation has expired and prior to a hearing, the TERO Officer may impose any sanction permitted under this ordinance.
- (d) Right To a Hearing. A covered employer that receives a citation shall be entitled to a hearing before the TERO Officer. A covered employer must request such hearing within 10 business days of the date of the TERO Officer's citation. The TERO Officer shall conduct a hearing no later than 10 business days after receipt of a citation, unless the covered employer and TERO Officer agree to a later date.

#### SECTION 4704. TERO Officer Hearing Procedures

Hearing procedures shall comply with the requirements of due process, but not necessarily formal rules of evidence. A covered employer shall be entitled to present evidence and call and question witnesses to demonstrate that it has complied with the requirements of this ordinance or that it has made best efforts to do so and therefore should not be subject to sanctions. On the basis of evidence presented at the hearing, and the information collected by TERO, the TERO Officer shall determine whether or not the covered employer complied with this ordinance.

Within 5 business days of concluding the hearing, the TERO Officer shall issue a written order. The written order shall:

- (a) Contain a brief summary of the investigation and hearing proceedings;
- (b) Include findings of fact;

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- (c) Provide the TERO Officer's determination of whether the covered employer has complied with the ordinance;
  - (d) Identify any defenses such as best efforts that may excuse the covered employer's non-compliance; and
  - (e) Direct the covered employer to take corrective action as necessary to remedy any harm caused by the non-compliance.

If the TERO Officer determines that the covered employer is out of compliance and such non-compliance is not excused, the TERO Officer by written order shall impose one or more of the sanctions provided for in this ordinance. The TERO Officer shall forward a copy of any order to the Executive Office.

#### **SECTION 4705. Emergency Relief**

When the TERO Officer determines that a violation has occurred that is of a critical nature requiring immediate remedial action, the TERO Officer may issue a citation and impose emergency sanctions without meeting notice requirements. The covered employer maintains a right to a hearing before the TERO Officer in accordance with section 4704.

#### **SECTION 4706. Administrative Appeals**

Any person adversely affected by a decision of the TERO Officer shall have the right to appeal the decision to the Executive Office. Any such appeal must be made within 10 business days of the date of the TERO Officer's written order. The Executive Office may decide the appeal based on the evidence in the record, including the TERO Officer's written order, or conduct a hearing de novo in accordance with TERO Officer hearing procedures. Within 5 business days of concluding an appeal hearing, or within 15 business days from filing of an appeal, whichever is later, the Executive Office shall issue a written order.

#### **SECTION 4707. Final Administrative Action**

A TERO Officer's citation for which a covered employer does not request a hearing shall become a final action 10 business days after the date of the citation. A written order of the TERO Officer after a hearing that is not appealed to the Executive Office shall become a final action 10 business days after the written order is issued. A written order of the Executive Office shall become a final action upon issuance.

## **CHAPTER 8. ENFORCEMENT AND SANCTIONS**

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### SECTION 4801. Sanctions

A covered employer who violates this ordinance shall be subject to sanctions including, but not limited to:

- (a) Denial of the right to commence or continue business or contracts on Yurok lands, with a Tribal entity, or involving Tribal funds;
- (b) Suspension of operations on Yurok lands, with a Tribal entity, or involving Tribal funds;
- (c) N/A
- (d) Payment of back pay and damages to compensate an injured party;
- (e) Imposition of monetary civil penalties;
- (f) An order to stop work until the provisions of this ordinance are satisfied;
- (g) An order to remove any employee hired in violation of this ordinance;
- (h) An order requiring the employment, promotion, or training of Indians injured by the violation;
- (i) An order mandating changes in procedure or policies necessary to eliminate or correct the violation; and
- (j) An order mandating any other provision deemed necessary by the Tribal Council or Tribal Court to alleviate, eliminate, or compensate for the violation.

### SECTION 4802. TERO Applicant Responsibilities

In order for TERO to conduct its services efficiently and to meet its goal of obtaining jobs for eligible Indians, TERO applicants are required to follow the work guidelines and procedures set forth by their respective employers. Failure to follow an employer's work requirements may be cause for disciplinary actions by the employer, up to and including termination. Failed drug screenings, poor employee performance reviews, disciplinary action, or termination by a covered employer may result in the TERO applicant forfeiting future client services, training and education opportunities, and TERO assistance for employment. These actions will be noted in the TERO applicant's file.

### SECTION 4803. Willful Violation of TERO Ordinance

Covered employers have an affirmative duty to inform the TERO Officer of all contracts that are not exempt from the TERO fee, and that are not exempt from TERO Indian preference requirements. A person commits the offense of Willful Violation of TERO Ordinance if the person:

- (a) Holds an executive position or is a governing board member with a covered

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employer, and

- (b) Knows, should know, or fails to appropriately investigate whether a contract is subject to this ordinance, and
- (c) Knowingly, willfully, or intentionally fails to inform the TERO Officer that the covered employer has entered into a contract subject to this ordinance or to collect TERO fees as directed by this ordinance.

Each contract for which the person fails to inform the TERO Officer shall constitute a separate offense. A person who violates this section shall be subject to a minimum fine of \$100 for each offense and shall be held jointly and severally liable for any TERO fees due to the Tribe that are not collected from the contractor.

**SECTION 4804. N/A**

**SECTION 4805. Monetary Civil Penalties**

The maximum monetary civil penalty that may be imposed for a violation of this ordinance is the maximum permitted under the Indian Civil Rights Act of 1968, 25 U.S.C. § 1302, as amended. TERO may establish a fee schedule setting the standard monetary civil penalty amount for violations of this ordinance. Each day during which a violation exists shall constitute a separate occurrence.

**SECTION 4806. Late Payment of Fees; Interest**

A covered employer that fails to timely pay the TERO fee may be subject to a monetary civil penalty or other sanctions and an interest rate of 15% per annum, compounded daily on all amounts owed, may be applied.

**SECTION 4807. Enforcement; Costs**

The TERO Officer shall be entitled to pursue the enforcement of any order of the TERO Officer, the Executive Office, or Tribal Court when necessary to enforce sanctions or to ensure compliance with the terms and conditions of any such order.

Any cost associated with the enforcement of an order issued pursuant to this ordinance may be assessed by the TERO Officer against the covered employer that is out of compliance. This may include but is not limited to document reproduction costs, administrative fees, filing fees, and attorney fees and costs.

**CHAPTER 9. TRIBAL COURT REVIEW AND ENFORCEMENT**

**SECTION 4901. Tribal Court Review of Decisions**

## MEMORANDUM OF UNDERSTANDING

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Any party to an appeal to the Executive Office who is dissatisfied with the Executive Office's decision may appeal that decision to the Yurok Tribal Court. Such appeal must be filed in accordance with Tribal Court rules and procedures and within 10 business days of the earlier of the following:

- (a) Five days after the date the Executive Office mails its decision to the party, or
- (b) The date the party receives an electronic copy of the Executive Office's decision.

#### **SECTION 4902. Standard of Judicial Review**

The Yurok Tribal Court shall review an appeal of the Executive Office's determination of factual findings for clear and convincing evidence of an error. Clear and convincing evidence means that the Tribal Court has a definite and firm conviction that the Executive Office's decision contained an unquestionable mistake. The Tribal Court shall review legal findings de novo, without any deference to the Executive Office's determination.

#### **SECTION 4903. Tribal Court Enforcement of Decisions**

The Tribal Court shall have the authority to issue any order or take any action necessary to enforce any final action of the TERO Officer or Executive Office. To request such Tribal Court order, the TERO Officer shall file a petition with the Tribal Court that includes:

- (a) A copy of the decision to be enforced;
- (b) A brief summary of the proceedings leading to the decision;
- (c) A statement as to the finality of the decision and lapse of the appeal deadline;
- (d) Identification of the person or entity subject to the decision;
- (e) Identification of any specific assets for the collection of monetary civil penalties; and
- (f) Sufficient facts showing the person or entity is not complying with the decision.

#### **SECTION 4904. Remedies**

Ruling on matters arising under this ordinance, the Tribal Court shall have the authority to assess and collect civil penalties, to enjoin or mandate actions to enforce the provisions of this ordinance, and to provide any other relief the Tribal Court deems lawful and equitable. Nothing in this provision or ordinance shall be construed as a waiver of the Tribe's sovereign immunity or as authority for a claim for money damages against the Tribe.

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This MOU may be amended by written agreement of the parties, or terminated by either party upon reasonable written notice. In the event of termination, unless otherwise mutually agreed by the parties, the provisions of this MOU will remain in force with respect to any contract covered hereunder which has already been awarded or for which contractor performance has already commenced.

The parties hereto have agreed to the objectives, principles, and recitations cited in this document and have further approved this MOU for signature by their duly authorized representatives.

for the Yurok Tribe

By: 

THOMAS P. O'ROURKE Sr.

Chairman

Date: 7/8/16

for the CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: 

for/ CHARLES C. FIELDER

District Director, District 1

Date: July 8, 2016

## **MATERIALS INFORMATION**

Geotechnical Recommendations for Weitchpec Curves, Locations 1 and 2

Dated April 13, 2016

# Memorandum

*Flex your power!  
Be energy efficient!*

**To:** JOHN MARTIN  
Branch Chief  
North Region Design Branch R1

**Date:** April 13, 2016

**Attn:** Jim Rasmussen

**File:** 01-HUM-169 PM 26.45/29.04  
EA: 01-0B4400  
EFIS: 0112000128  
Storm Damage Repair

**From:** DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
OFFICE OF GEOTECHNICAL DESIGN WEST BRANCH F

**Subject:** Geotechnical Recommendations for Weitchpec Curves, Locations 1 and 2

## Introduction

The Office of Geotechnical Design West (OGDW) is providing Geotechnical Design Recommendations for two storm-damage sites on State Route 169 at PM 26.45 (Location 1) and PM 29.04 (Location 2). Figure 1 shows the project locations.

The scope of work performed by staff in OGDW included review of geologic maps, surface field investigations, and preparation of this memorandum. We performed no drilling and we have no subsurface information.

All station locations reported in this memorandum are approximate.

## Summary of Field Investigations

The Office of Geotechnical Design West Branch F performed field investigations in 2011 (November 30 and December 16) and 2012 (January 6, March 7, October 3, and October 23). We mapped features related to geology and slope stability, measured rag-tape topographic cross sections, and identified rocks and soils. Published geologic maps show the South Fork Mountain Schist at both locations (Figure 2). However, we also observed Quaternary landslide deposits containing ultramafic rocks along the cutslope at Location 1.

We collected samples of the Quaternary landslide deposits and had the samples tested for Naturally Occurring Asbestos (NOA). The District Hazardous Waste Coordinator prepared an Initial Site Assessment (ISA) memo on November 6, 2013.

## **LOCATION 1, DAF #30, HUM 169 PM 26.45**

A roadway slip out occurred at PM 26.45 in early 2011. The Damage Assessment Form (DAF #30) contains photos and sketches showing approximately 200 feet of damage along the outboard lane. We identified approximately 300 feet of damage affecting both lanes and the unpaved outboard shoulder between from Station 11+75 and Station 14+80.

The DAF proposal was to construct a rock buttress and reconstruct the roadway.

The current plan is to construct an RSP buttress, and grade the inboard ditch to drain, inspect and modify the cross culvert at PM 26.44 to collect surface water, reconstruct the roadway from Station 11+75 to Station 14+80, and restore the roadway width and retain the existing turn-out area southeast of station 14+40 for use by Maintenance.

### **Field Investigations at Location 1**

Maintenance staff reported severe roadway sinking at this site. During our initial site visit we observed that the road had been paved recently. The asphalt was thickest along the right edge of pavement where the roadway had been sinking the most. Figure 3 is a plan map of Location 1 and Figure 4 shows roadway deformation in both lanes.

We observed surface water in the inboard ditch, to the north of the culvert (PM 26.44), during all of our site visits. Water flowed during wetter months and stood in the ditch during dryer months. Water could be heard flowing beneath the dry culvert. The steep drainage above the culvert inlet was dry during all site visits.

In March 2012, we observed water emerging through the pavement. In October 2012 we observed a brownish precipitate where the water had evaporated (location marked on Figure 3).

The cutslope exposes Quaternary landslide deposits (and/or slope wash) throughout most of the site (Figure 5). The deposits consist of soft, moist, greenish gray clayey gravel with sand (GC) having very high dry strength. Cementation is moderate. The clayey gravel with sand contains mostly fine to coarse angular gravel, little fine to coarse angular sand, little clay, and few cobbles of altered ultramafic rock. The ultramafic rock cobbles are fine to coarse and light olive gray to dusky yellow green, varying from fresh to slightly weathered.

Naturally Occurring Asbestos (chrysotile) was detected (<0.25%) at Location 1 in all three samples from the cutslope. These deposits have been mapped uphill from the roadway (Figure 2).

The cutslope in the eastern part of Location 1 exposes the South Fork Mountain Schist, which is decomposed to very dark gray to black, moist, silty sand (SM). The silty sand consists of mostly sand, from coarse to fine; some fines; little to few, fine to coarse gravel consisting of vein quartz and schist fragments. Cementation is weak.

The embankment contains dark grayish brown, moist, well graded sand with silt and gravel (SW-SM). The SW-SM consists of mostly sand, from coarse to fine, angular to subrounded; some fines; little fine to coarse, subangular to subrounded gravel. Cementation is weak. The slope of the embankment varies from approximately 1.5H:1V to 1.15H:1V.

The embankment supports large trees below the roadway and along the hinge point on the south end of the site as shown on the map (Figure 3).

Below the roadway we observed hummocky ground and a number of landslide scarps at various elevations below the roadway embankment. This project is intended to reconstruct the roadway but not to stabilize the slope failures observed below the embankment.

#### **Location 2, DAF #32, HUM 169 PM 29.04**

In early 2011, a roadway slip out occurred at PM 29.04. The Damage Assessment Form (DAF # 32) contains photos and sketches showing approximately 200 feet of deformation in the outboard lane. Geotechnical staff measured approximately 140 feet of deformation in the outboard lane and along the unpaved shoulder, from Station 21+80 to the cross drain near Station 23+20. Figure 6 shows a map of Location 2.

The DAF proposal was to construct a rock buttress and reconstruct the shoulder. The current plan is to construct an RSP buttress, reconstruct the roadway from Station 21+80 to the culvert near Station 23+20 (Figure 6), and restore the roadway and shoulder.

#### **Field Investigations**

The slip out is defined by cracks and sunken ground in the pavement and unpaved shoulder.

South Fork Mountain Schist is exposed in the cutslope at the west end of the project, where it is decomposed to gray, moist, well graded sand with silt and gravel (SW-SM). The decomposed schist consists of mostly sand, from coarse to fine, angular; some fines; little fine to coarse angular gravel. Cementation is weak.

The embankment below the roadway contains dark grayish brown, moist, well graded sand with silt and gravel (SW-SM). The SW-SM consists of mostly sand, from coarse to fine, angular; some fines; little fine to coarse angular gravel sized fragments of schist. Cementation is weak. The embankment slopes are approximately 1H:1V, but locally the embankment is as steep as 0.3H:1V. The fill slope contains South Fork Mountain Schist at the surface.

Runoff from the county road above HUM 169 is carried into the inboard ditch through a culvert. The runoff can seep beneath the roadway (labeled as “x-drain” on Figure 6) southeast of PM 29.04 under current conditions.

## **Recommendations**

### **LOCATION 1**

1. We recommend that North Region Hydraulics, D01, assess the metal cross culvert at PM 26.44 if this has not been done. This is where surface water runs into roadway fill.
2. Construct an RSP buttress on the right side of the roadway, between Station 11+70 and Station 14 +80 with a cut along the centerline from Station 11+70 to Station 14+80 (Figure 3). Design details are provided below and in Figure 7.
3. Grade the inboard ditch to drain to the nearest cross culverts.

### **LOCATION 2**

1. Construct an RSP buttress on the right side of the roadway, between Station 21+80 and Station 23+10. We recommend a cut within the outboard lane, approximately three feet from the center line, between Station 12+00 and Station 12+35. We recommend a cut along the right fog line east of Station 12+00 and west of Station 12+35. Details for construction are provided below and in Figure 7.
2. Grade the inboard ditch to drain from Station 21+80 to the cross drain at PM 29.06.

### **BOTH LOCATIONS**

- Excavate a 1:1 slope allowing at least 14 feet for one-lane traffic and K-rail during construction.
- Grade the base of the excavation to approximately 5% to drain to the toe of the slope.
- Place RSP so as to achieve existing roadway width.

- Place RSP fabric Class 8 at the base of the excavation and on the excavated cutslope (See 72-1.03 of the 2010 Standard Specifications, regarding placement of fabric).
- Backfill the excavation with ¼ ton RSP. Placement of the RSP should be in accordance with Section 72-2.03B Placement Method A of the 2010 Standard Specifications.
  - The finished slope should be 1:1 or gentler to match the existing slope.
  - Place RSP Fabric above the ¼-ton RSP, so as to wrap the RSP on three sides: above, below, and along the excavated cutslope.
- Place one foot of RSP (Rock Size Class No. 3, Method B) above the RSP filter fabric.

### **Construction Considerations**

1. Naturally Occurring Asbestos (NOA) exists at Location 1. Chrysotile was detected (<0.25%) in all three bulk samples which were collected from the cutslope.
2. Groundwater may be encountered during excavation.
3. Overhead power lines are present at Location 2.
4. Excavate the embankment and construct the RSP in segments as needed length of the embankment to be reconstructed (Figure 7).

### **Reference**

Wagner, D.L., and Saucedo, G.J., 1987, Geologic map of the Weed quadrangle, California: Regional Geologic Map Series, Map No. 4A (Geology), 4 Sheets, 1:250,000.

If you have any questions or comments, please contact Dawn McGuire at 707-445-3994 or Charlie Narwold at 707-445-6036.

Report by:

Reviewed by:



DAWN MCGUIRE  
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Engineering Geologist  
Office of Geotechnical Design West  
Branch F

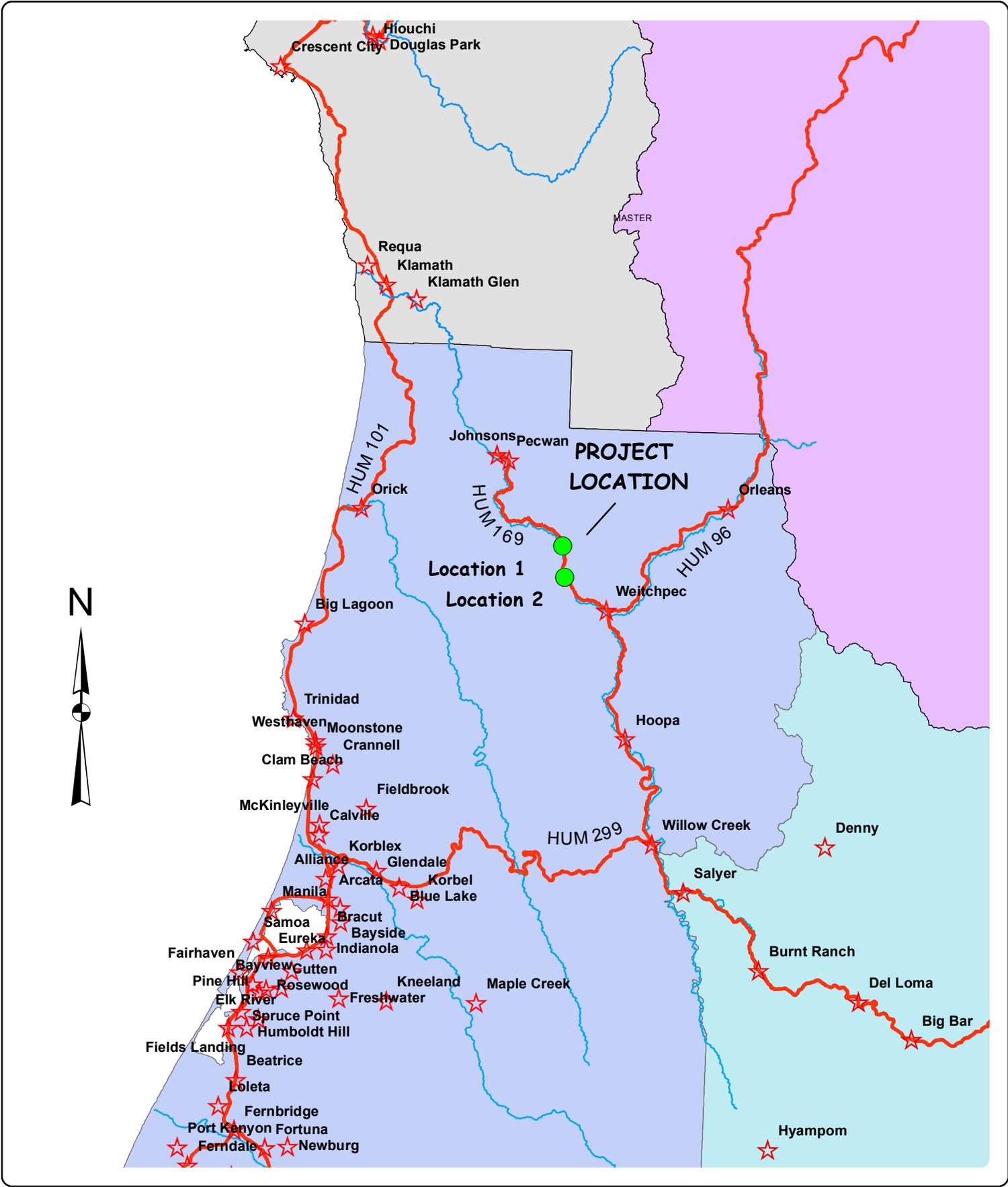
CHARLIE NARWOLD  
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Senior Engineering Geologist  
Office of Geotechnical Design West  
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Attachments

Figures

- Figure 1. – Location Map
- Figure 2. – Geologic Map
- Figure 3. – Plan map of Location 1.
- Figure 4. – Photos showing roadway deformation at Location 1.
- Figure 5. – Photos showing unit Qls on cutslope at Location 1.
- Figure 6. – Plan map of Location 2.
- Figure 7. – Typical design details for embankment RSP.

c: OGDW Project File



0 4.25 8.5 17 Miles

Department of Transportation Division of Engineering Services Office of Geotechnical Design North Branch B	EFIS ID: 0112000128	<h1>LOCATION MAP</h1>	
	DATE: APRIL 2016		
	Geotechnical Recommendations	FIGURE 1	

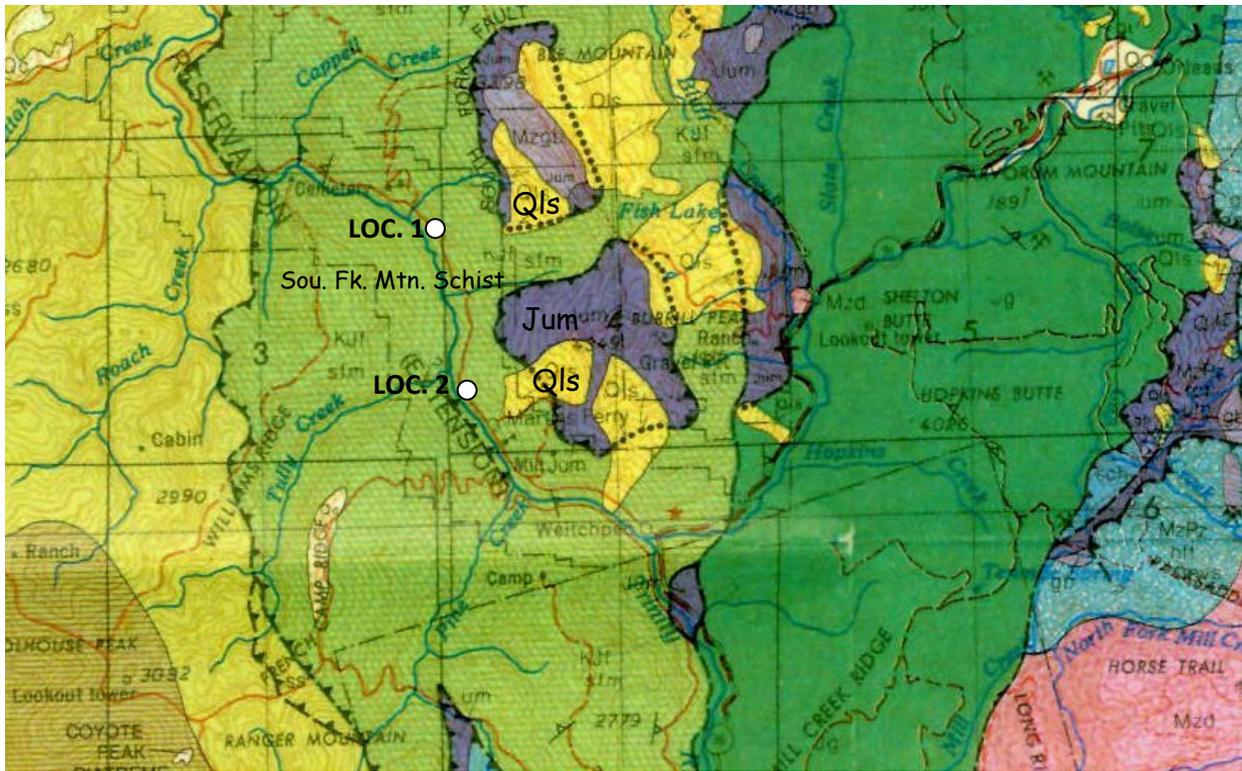


Figure 2. -- Geologic map showing Location 1 (PM 26.45) and Location 2 (PM 29.04) within South Fork Mountain Schist. Above the road are areas mapped as ultramafic rock (Jum) and Quaternary landslide deposits (Qls). The Qls containing gravel and cobbles of ultramafic rock was observed on the cutslope at Location 1.

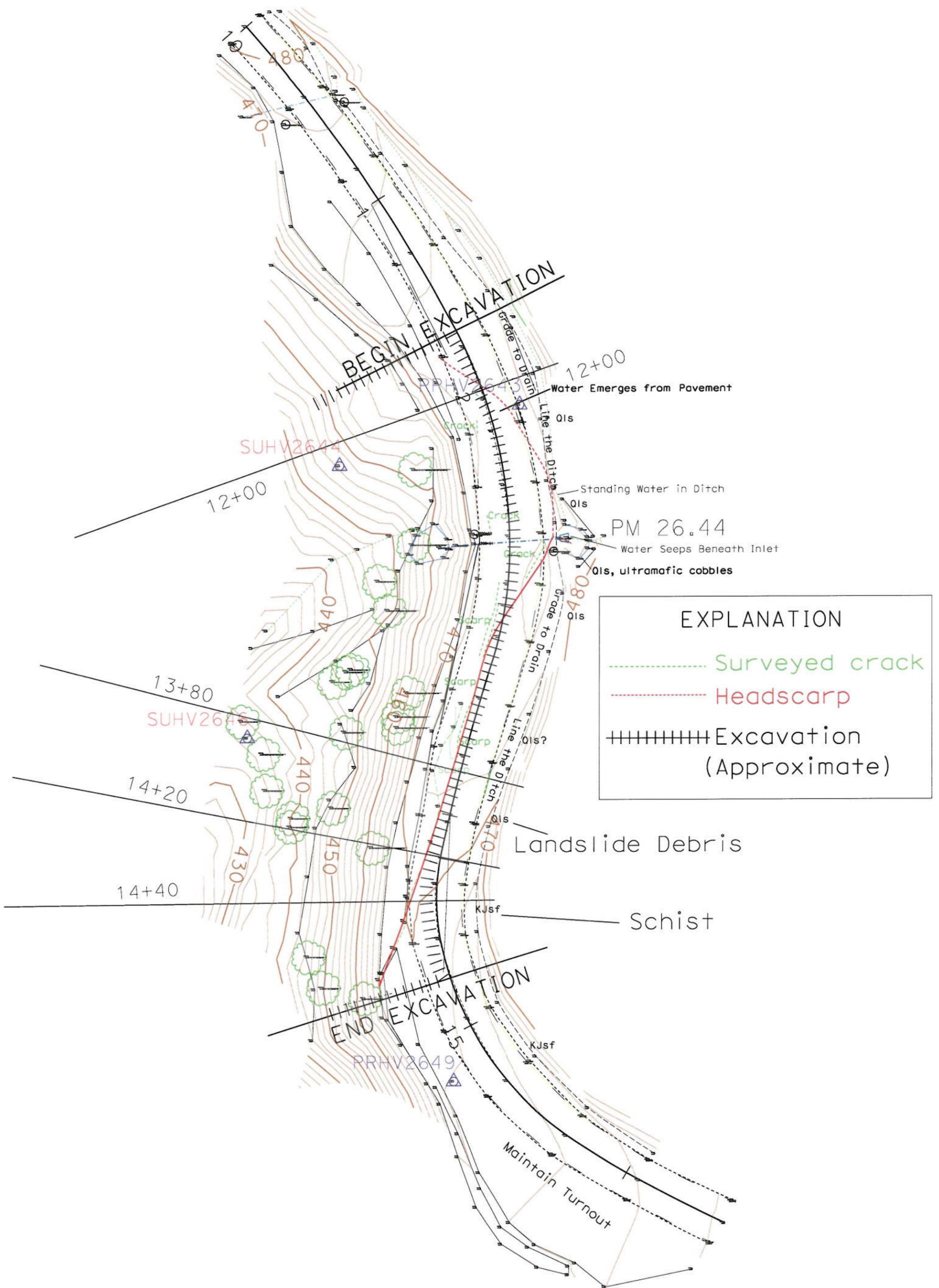


FIGURE 3. -- Plan map of Location 1, HUM 169 PM 26.45.



Figure 4. – Photos showing roadway deformation at Location 1.



Figure 5. – Photos showing ultramafic rocks in unit Q1s on the cutslope at Location 1.

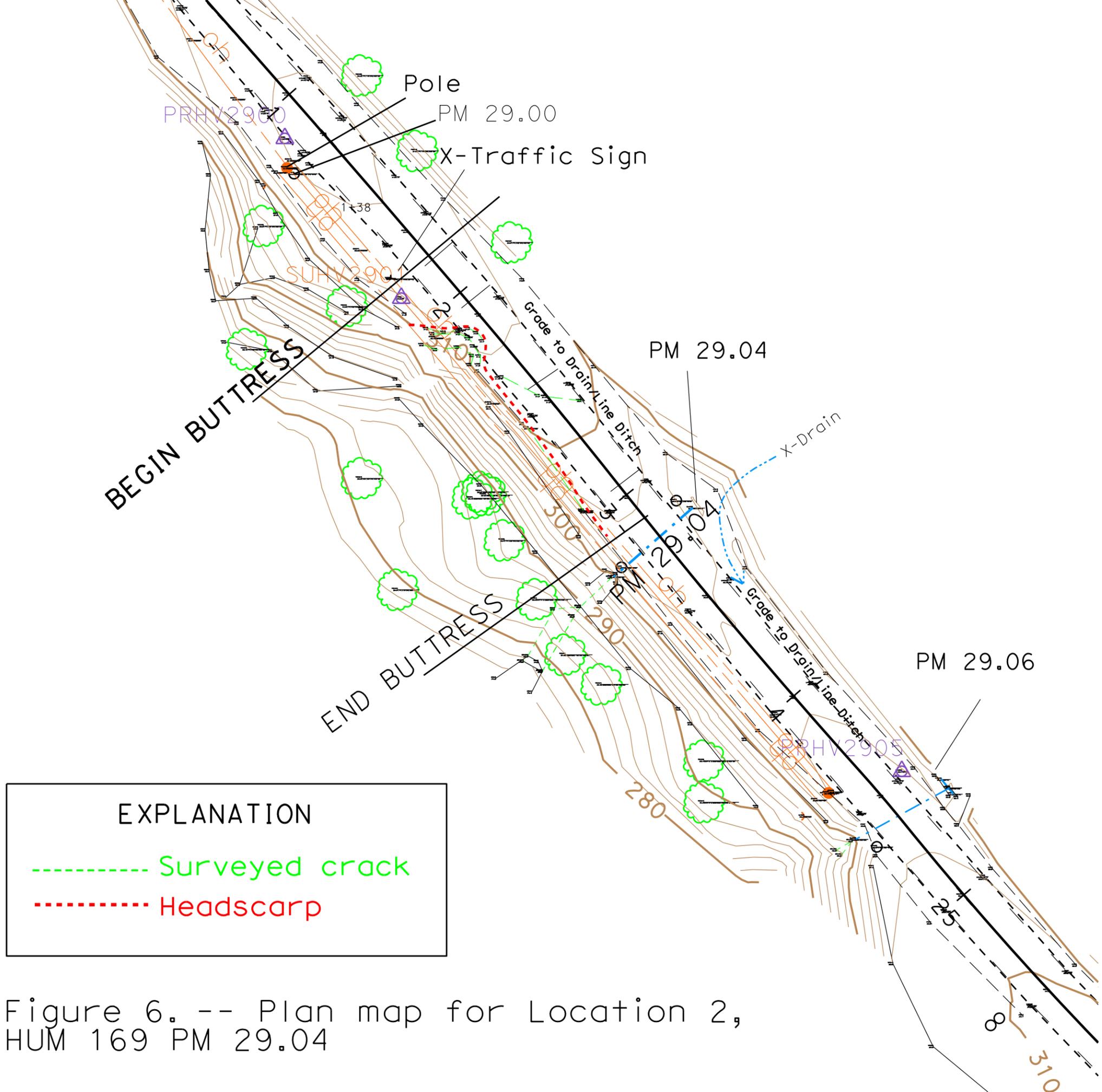


Figure 6. -- Plan map for Location 2,  
HUM 169 PM 29.04



## **MATERIALS INFORMATION**

Geotechnical Design Report (Slope Stabilization)

Dated February 4, 2016

## Memorandum

To: JOHN L. MARTIN  
Branch Chief  
Office of Eng. Services and Design North, Branch R1

Date: February 4, 2016

Attention: Jim Rasmussen  
Project Engineer

File: 01-Hum-169-29.8  
Slope Stabilization  
01-0B4401  
Project ID 0112000128

From: **DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES  
GEOTECHNICAL SERVICES – MS 5**

Subject: Geotechnical Design Report (Slope Stabilization)

### Scope of Work

A Geotechnical Design Report (GDR) is provided for the above referenced project. This report is based on a review of the published geologic maps and reports, mapping of the local geologic and topographic features, five rotary boreholes, review of the data from the monitoring of piezometers and slope inclinometers, several field reviews and design analyses.

The following publications were used in the preparation of this Geotechnical Design Report:

1. *Caltrans Seismic Design Procedure, Geotechnical Services Design Manual*, August 2009.
2. *Geologic Map of the Weed Quadrangle*, 1:250,000, California Division of Mines and Geology, compiled by D. L. Wagner and G. J. Saucedo, 1987.
3. *Geotechnical Services Design Manual, Version 1.0*, (Division of Engineering Services, August 2009).
4. *AASHTO LRFD Bridge Design Specifications, 6<sup>th</sup> Edition*, 2012.
5. *Soil and Foundations Manual*, FHWA HI-88-009, July 1993.
6. *Landslides in Practice: Investigation, Analysis, and Remedial/Preventative Options in Soils*, Derek Cornforth, Wiley, 2005.

### Project Description

The proposed improvements include stabilization of a segment of route 169 in rural Humboldt County. Distortions and cracking in the existing roadway indicate the roadway is translating both downward and laterally toward the Klamath River (west). The highest degree of roadway movement is occurring over a longitudinal distance of 90 feet, measured along the west edge of pavement. The roadway disturbance for the most active slope failure is limited to the southbound

lane. This feature is nested within another slope failure that is 200 feet long, as measured along the outboard edge of pavement. The roadway disturbance for this feature involves both the northbound and southbound lanes. Additionally, in the northbound lane, there is a 40 foot long section of pavement that is being heaved upwards. This feature lies immediately south of the southern limit of the larger feature described above.

Caltrans maintenance personnel indicate that the movement takes place in the rainy season, with the majority of the movement occurring toward the end of the wet season. It is assumed that this indicates that translational and/or rotational slope failures are occurring in response to higher soil moisture contents and elevated pore pressures.

Under a 2006 emergency construction contract, movement of the roadway led to the construction of an underdrain system along the outside edge of the northbound lane and placement of a rock fill to support portions of the southbound lane. This contract subsequently included placement of a rock buttress on the face of the cut slope adjacent to the northbound lane. Borehole RC-13-004, drilled for this project, encountered the underdrain.

This study utilized layouts, cross sections and profiles provided by Design North.

### **Field Investigation and Testing Program**

The Office of Geotechnical Design-West conducted a subsurface investigation during June and September of 2013. Five rotary borings (RC-13-001 through RC-13-005) were performed in the roadway within and adjacent to the limits of the slope movement. Continuous punch coring methods were used to advance through soil and rock. Soils and rocks were visually classified in accordance with the Caltrans Soil and Rock Logging, Classification, and Presentation Manual (June 2010). A Site plan showing the locations of the boreholes can be found appended to this report and labeled as Plate 2.

Standard penetration tests (SPT), ASTM test method 1586, were performed at selected depth intervals to estimate the in-place density of the fill and native soil. Where rock consistency was sufficiently low, Standard penetration tests were performed in the rock. Empirical correlations of soil strength parameters with SPT blow counts were used to estimate strength parameters of in-situ cohesionless soils. The maximum depth of the investigation was 140 feet. A summary of the borings drilled during the 2013 subsurface investigation is included in Table 1.

**Table 1: Subsurface Investigation Summary**

Boring No.	Completion Date	Drill Rig Type	Hammer Type	Hammer Efficiency (%)	Approx. Ground Surface Elevation (ft)	Boring Depth (ft)
RC-13-001	6/2/2013	Acker	Automatic	83	314.0	80.0
RC-13-002	6/4/2013	Acker	Automatic	83	313.0	82.0
RC-13-003	6/11/2013	Acker	Automatic	83	311.5	140.0
RC-13-004	9/16/2013	Acker	Automatic	83	311.0	140.0
RC-13-005	9/23/2013	Acker	Automatic	83	310.0	100.0

A detailed geologic and landslide features map was produced for the project location and the adjacent slopes above and below the roadway. During the field reviews of the project site, the topography, surficial soils, cultural features and landslide geomorphologic features were observed. The geologic map of the project site can be found appended to this Geotechnical Design Report, and labeled as Plate 1.

**Laboratory Testing Program**

Laboratory testing was performed on selected samples of the subsurface materials obtained from the 2013 subsurface investigations. Soil and rock samples were collected and submitted to the Headquarters Geotechnical Laboratory for corrosion potential testing (CT 643). The corrosion test results for the selected samples may be found in the Corrosion Evaluation section of this report.

**Site Geology and Subsurface Conditions**

*Regional Setting and Area Geology*

Preliminary information regarding the site characteristics was obtained from published geologic maps, seismic maps, and previous geotechnical investigations and reports for projects in and near the proposed project.

The project is located within the Klamath Mountains geomorphic province of California. The Klamath Mountains are an area of rugged topography with prominent peaks and ridges reaching 6,000 to 8,000 feet above sea level. The Klamath Mountain Geomorphic Province is bounded to the west by the Coast Range geomorphic province and to the east by the Cascade Range geomorphic province.

The Geologic Map of the Weed Quadrangle (CDMG, 1987), was reviewed to determine the geologic features within the project limits. The map indicates that the geologic unit underlying the project consists of Mesozoic Age Cretaceous Franciscan Complex, the South Fork Mountain Schist. The dominant lithology of the South Fork Mountain Schist is a dark gray to green quartz-albite-muscovite-chlorite schist. Foliated greenstone and quartz-gneissic rocks are also found

within this formation. The geologic literature indicates that the dominant modes of mass wasting include large landslides and earth flows.

There are no known faults within the project limits.

### *Subsurface Conditions*

Materials encountered by the boreholes include fill, landslide debris deposits, soil developed from weathered rock, and rock. Observed fill thicknesses varied from 0 to 15 feet. The fill was a mixed soil of sand, clay and gravel, typically with low standard penetration test values. The underlying landslide debris deposits were typically mixtures of clay and gravel, with one exception being a 21 foot thick zone of silty clay encountered at borehole RC-13-003. The top of rock was encountered between elevations 263.5 and 279, with deeper rock contacts generally toward the north end of the project. Rock types encountered include mica schist, quartz mica schist, meta-sandstone, chlorite schist and met-shale. Much of the rock was moderately to intensely fractured, with boreholes RC-13-002 and RC-13-003 encountering very intensely sheared and pervasively sheared rock. Complete descriptions of the materials encountered can be found in the boring records, which are Attachment 1 to this report.

Several of the boreholes encountered zones of brecciated rock and sheared rock. This material likely represents active or inactive slope failure surfaces. These features are noted on the boring records. Soft or loose zones of soil within the fill materials and landslide debris deposits, and at the top of the relatively unweathered rock are also considered likely active or inactive slope failure surfaces.

Three of the boreholes drilled in 2013 were completed as slope inclinometers. The slope inclinometers were constructed by placing a 3.34 inch diameter Geo-Lok inclinometer casings in 6.0 inch diameter boreholes. For RC-13-003 and RC-13-005, the annular spaces between the slope inclinometer pipes and the borehole walls were filled with cement grout that was placed through a tremie pipe connected to foot valves at the bottom of the SI pipes. The annular space in slope inclinometer RC-13-004 was backfilled with sand. Graphical presentation of the lateral ground movement data is provided as Attachment 2 to this report.

There had been no movement detected by the slope inclinometers until the most recent reading in January of 2015. The January 2015 measurements indicate definitive small magnitudes of displacement. The summary of the elevations of lateral ground displacements measured in the slope inclinometers is provided in the following table.

**Table 2: Slope Inclinerometer Summary**

<b>Boring Number</b>	<b>Ground surface elevation at SI (feet)</b>	<b>Elevation of bottom of slope inclinometer (feet)</b>	<b>Approximate elevation of 1/2015 observed lateral movement (feet)</b>
RC-13-003	311.5	174.75	287.5
RC-13-004	311.0	171.0	303.5
RC-13-005	310.0	219.5	302.0

*Groundwater*

A spring was observed on the hillside above the roadway during the summer 2013 geologic mapping. The spring is located upslope of the northern limit of the larger slope movement feature observed in the roadway.

Wet soils were encountered in all five boreholes. The soils described as wet include fill, landslide deposits and decomposed rock. The lateral and vertical locations of the wet soil zones are chaotic, and appear to not be predictable. The water levels observed in the piezometers do not correlate with the elevations of the wet soils. No attempt was made to observe water levels during the drilling process as the holes were advanced with the mud rotary method.

Two of the boreholes were completed as piezometers. Additionally, the slope inclinometer casing installed in borehole RC-13-004 was perforated, and the annular borehole space was backfilled with sand. The piezometer construction details are provided in the following table.

**Table 3: Piezometer Installation Summary**

<b>Boring Number</b>	<b>Ground surface elevation at piezometer (feet)</b>	<b>Elevation of top of piezometer pipe (feet)</b>	<b>Elevation of bottom of piezometer slotted pipe (feet)</b>
RC-13-001	314.0	313.8	263.8
RC-13-002	313.0	312.8	262.8

Water levels in the piezometers and slope inclinometer were periodically observed. The following table provides the results of the measurements.

**Table 4: Groundwater Observation Summary**

Date	Groundwater elevation		
	RC-13-001	RC-13-002	RC-13-004
10/14/2013	Dry and blocked at 269.6	Dry and blocked at 278.3	No water observed
12/03/2013	Dry and blocked at 269.6	Dry and blocked at 278.3	No observations made
1/22/2014	Dry and blocked at 269.5	Dry and blocked at 278.3	234.5
3/20/2014	Dry and blocked at 269.4	281.2	235.0
1/28/2015	Dry and blocked at 269.6	Dry and blocked at 278.9	235.0

Weather patterns preceding construction will determine the degree of soil saturation and the distribution of subsurface water. The water level observations clearly indicate that ground water vertical and lateral distribution is both chaotic and is subject to seasonal fluctuations. It is therefore reasonable to expect that subsurface water may occur at higher or lower elevations than those observed over the short period of this study, with water levels dependent upon climactic conditions and normal seasonal variations.

Ground water surface elevations are subject to seasonal fluctuations and may occur at higher or lower elevations depending on seasonal conditions and water levels at the time of construction.

**Scour Evaluation**

The project site does not cross a water course. A scour evaluation was not performed.

**Corrosion Evaluation**

Representative soil samples taken during the subsurface investigation were tested for corrosion potential. The Department considers a site corrosive to foundation elements if one or more of the following conditions exist for the representative soil and/or water samples taken at the site:

- Chloride concentration is greater than or equal to 500 ppm
- Sulfate concentration is greater than or equal to 2000 ppm
- The pH is 5.5 or less

Since resistivity serves as an indicator parameter for the possible presence of soluble salts, tests for sulfate and chloride are usually not performed unless the resistivity of the soil is 1,000 ohm-cm or less.

The results of the laboratory tests determined that the foundation soils are not considered corrosive.

**Table 5: Corrosion Test Summary**

TL 101 Number	Boring Number	Sample Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Chloride Content (ppm)	Sulfate Content (ppm)
C701665	RC-13-002	25.0 – 27.0	8.04	1137	0	1200
C701666	RC-13-002	40.0 – 42.0	8.82	4610	N/A	N/A
C701667	RC-13-003	27.0 – 29.0	7.76	1389	N/A	N/A
C701668	RC-13-004	20.0 – 22.0	8.72	4777	N/A	N/A
C701669	RC-13-005	24.0 – 28.0	8.89	4385	N/A	N/A

## Seismic Recommendations

### *Ground Motion*

The Caltrans ARS Online Tool was used to determine peak ground accelerations for deterministic and probabilistic seismic prediction models. The analysis used an estimated average shear wave velocity of 1840 ft/sec (560 m/s) for the upper 100 feet (30 meters) of soil and rock at the project site. A basin factor of 1.0 was utilized.

The Big Lagoon – Bald Mountain Fault is located in the closest active or potentially active fault to the project site. For the deterministic method, ground motions resulting from activity on the Big Lagoon – Bald Mountain Fault yielded an estimated peak ground acceleration of 0.40g. The estimated peak ground acceleration for the probabilistic case is 0.41g. The shear piles were not designed for seismic lateral earth pressures because the design method for the lateral loads is considered to be conservative.

**Table 6: Active or Potentially Active Fault**

Fault Name	Fault Type	Moment magnitude of maximum credible earthquake	Distance from fault to project site (miles)	Deterministic peak ground acceleration (gravity)
Big Lagoon – Bald Mtn.	Reverse	7.5	8.6	0.40

### *Ground Rupture*

Ground rupture hazard at the retaining wall location is considered negligible. No known active or potentially active faults project toward or cross the project location.

### *Liquefaction*

Liquefaction is a near-total loss of soil strength due to an increase in pore water pressure during cyclic loading, such as occurs during an earthquake. Loose sands and gravels with 20 percent fines

or less that have the potential of being saturated are susceptible to liquefaction. Liquefaction potential at the project site is negligible.

### **As-built Foundation Data**

There is no relevant as-built information for the design and construction of the proposed slope stabilization measure.

### **Slope Stabilization System Design Recommendations**

The following recommendations are for the proposed slope stabilization systems at the project location, as indicated on Layout L-3 Sheet dated December 2, 2015. Linear arrangements of shear piles are recommended at two locations. Location 1 is below the roadway, west of the roadbed hinge point: from approximately 20.1 feet right W3 station 32+80 to approximately 18.8 feet right W3 station 35+00. Location 2 is east of the roadbed at approximately 16.8 feet left W3 station 33+85 to approximately 16 feet left W3 station 34+55.

#### *Slope failure morphology and stability analysis*

The borehole records and the most recent slope inclinometer data indicate lateral slope movement is extending through the roadway and fill, into the landslide debris deposits or decomposed rock. Borehole RC-13-003 indicates that the failure plane pass through wet very soft silty clay.

Overall stability of the proposed shear pile slope stabilization systems (locations 1 and 2) were analyzed for static loading. The soil and rock strength parameters were developed using correlation methods found in the Bridge Design Specifications 6<sup>th</sup> Edition (2012) and the FHWA Soils and Foundation Manual (FHWA HI-88-009, July 1993) and conventional slope stability back-calculation techniques. The subsurface models include slope failure surfaces that are in locations consistent with the observed surface features and slope inclinometer data. The back-calculation and design analyses were based on the assumed location of the ground water surface at approximately 7 feet below the ground surface at location 1, and approximately 5 feet below the ground surface at location 2. A typical cross section used for the slope stability analyses is included in Attachment 3. The analyses resulted in the soil and rock parameters provided in Tables 7 and 8.

**Table 7: Design analysis soil and rock parameters at Location 1**

Zone No.	Layer boundaries at Shear pile layout line	Material Type assumed for design model	Estimated Engineering Parameters
1	Original ground to elevation 300	Rock slope buttress	$\phi = 35$ degrees, $c = 1000$ psf, $\gamma_m = 140$ pcf
2	Elevation 293 to elevation 300	Fill	$\phi = 32$ degrees, $c = 200$ psf, $\gamma_m = 120$ pcf
3a	Elevation 282 to elevation 293	Landslide deposits and decomposed rock consisting of silty clay	$\phi = 20$ degrees, $c = 150$ psf, $\gamma_m = 115$ pcf
3b	Elevation 268 to elevation 282	Landslide deposits and decomposed rock consisting of silty clay	$\phi = 20$ degrees, $c = 350$ psf, $\gamma_m = 115$ pcf
4	Below elevation 268	Rock	$\phi = 38$ degrees, $c = 2000$ psf, $\gamma_m = 140$ pcf

**Table 8: Design analysis soil and rock parameters at Location 2**

Zone No.	Layer boundaries at Shear pile layout line	Material Type assumed for design model	Estimated Engineering Parameters
1	Original ground to elevation 310	Rock slope buttress	$\phi = 35$ degrees, $c = 1000$ psf, $\gamma_m = 140$ pcf
2	Elevation 289 to elevation 310	Landslide deposits and decomposed rock consisting of silty clay	$\phi = 19$ degrees, $c = 150$ psf, $\gamma_m = 115$ pcf
3	Elevation 284 to elevation 289	decomposed rock	$\phi = 34$ degrees, $c = 0$ psf, $\gamma_m = 130$ pcf
4	Below elevation 284	Rock	$\phi = 38$ degrees, $c = 2000$ psf, $\gamma_m = 140$ pcf

*Shear pile design methodology*

The shear pile strategy is proposed for stabilization of slope movement that originates on the outside pavement edge of the northbound lane, and displaces the roadway downward and toward the west (location 1). Per the decision of the project development team, vertical shear piles will be placed in a line parallel and approximately 10.5 feet beyond the existing roadway hinge point, and 7.5 feet beyond the proposed roadway hinge point. The piles will add additional shear resistance to the soils forming the slope.

A line of shear piles is also recommended for stabilization of a slope instability that originates above the northbound lane and toes in the middle of the roadbed (location 2). The vertical shear piles will be placed along a line located approximately 5 feet into the slope from the existing rock

buttress catch point. These piles will arrest the lateral and upward movement of the roadbed. Shear pile design followed the methods outlined in Cornforth (2005), and proposed by Yamasaki. The slope stability program SLOPEW was used to determine the landslide driving force at the location of the shear piles. Design calculations based on the location of the failure surface and the back-calculated strengths of the soils at the site were performed to determine the pile configuration and reinforcement requirements. The slope stability program SLOPEW was used to determine the landslide driving force at the location of the shear piles. The lateral pile analysis program LPILE was used to determine the shear forces and moment demands in the shear piles. The shear pile reinforcement requirements was determined using conventional engineering design methods. A resistance factor of 0.70 was applied to the design of the longitudinal steel.

#### *Location 1 Shear pile configuration recommendations*

The profile provided by Design North for the top of the shear piles, indicates that the pile top elevations vary between approximately elevations 303 and 308. Design alternatives were developed for 2 foot diameter and 2.5 foot diameter shear piles. Construction indicated their preference for the larger diameter piles. The following recommendations apply to the location 1 installation of a line of shear piles:

- 2.5 foot diameter CIDH piles
- 60 foot long CIDH piles
- Pile center to center spacing of 8 feet
- Longitudinal reinforcement consisting of 8 no. 9 steel reinforcement bars
- Confinement steel consisting of a no. 4 spiral with a 6 inch pitch
- 1 inch max. concrete aggregate size
- 3 inches of concrete cover
- 3600 psi concrete

#### *Location 2 Shear pile configuration recommendations*

The profile provided by Design North for the top of the shear piles, indicates that the pile top elevations vary between approximately elevations 311 and 312. Design alternatives were developed for 2 foot diameter and 2.5 foot diameter shear piles. Construction indicated their preference for the larger diameter piles. The following recommendations apply to the location 2 installation of a line of shear piles:

- 2.5 foot diameter CIDH piles
- 50 foot long CIDH piles
- Pile center to center spacing of 10 feet
- Longitudinal reinforcement consisting of 8 no. 9 steel reinforcement bars
- Confinement steel consisting of a no. 4 spiral with a 6 inch pitch
- 1 inch max. concrete aggregate size
- 3 inches of concrete cover

- 3600 psi concrete

#### *Limitations of the recommended slope stabilization system*

The recommended strategy consists of two installations of linearly arranged shear piles. The shear piles are designed to arrest slope movement along observed shallow slope failure surfaces. This strategy was presented to the Project Development Team, and adopted. It is recognized by the Project Development Team that the project will not have a stabilizing effect on deeper failure surfaces that may exist at the project location. Should slope movement occur along one of the deep failure planes within the rock, it is likely that the shear piles will be displaced along with the roadway, and possibly damaged. Mitigating deeper failure surfaces is beyond the scope and funding of this project.

#### *Specifications for shear piles*

The bar reinforcement must be deformed bars complying with ASTM A706/A706M, Grade 60 as indicated in section 52-1.02B. The shear piles should be constructed in compliance with Caltrans Standard Specifications (2015) section 49-3 (cast-in-place concrete piling), with exceptions noted below.

If the CIDH shear piles cannot be dewatered by pumping, so that 6 inches or less remain in the bottom of the borehole excavation, concrete should be placed by tremie using the water displacement method. No mineral or synthetic slurry is to be used.

### **Backfilling of Existing Observation Wells and Slope Inclinometers**

The Site Geology and Subsurface Conditions section of this report describe the three slope inclinometers and two observation wells that were installed through the roadway at the project location. Plate 2 provides the locations and the installation details of these installations. The contract plans, specifications and estimates should include provisions for paying the contractor to obtain permits from Humboldt County and backfilling these installations. When the permit is obtained, the County will detail the required methods for backfilling. The permit holder will be required to hold a valid C57 contractor's license.

### **Construction Considerations**

#### *General construction considerations*

1. Shear pile construction between December 1<sup>st</sup> and May 1<sup>st</sup> should be undertaken with caution. Rainfall may result in wet and saturated subsurface materials, and elevated ground water levels. Slope movement occurs in the winter and spring months when the ground water level and the soil/rock moisture content rises and the shear strengths of the foundation materials decrease.

2. It is recommended that construction be sequenced such that concrete has “set” in immediately adjacent shear pile excavations, prior to beginning excavation of the neighboring shear pile. This is intended to minimize ground disturbance and cross flow of concrete between adjacent shear piles.
3. The tops of the shear piles at locations 1 and 2 will either project above the ground line at the time of construction, or a portion of the upper pile length will be embedded in a rock buttress. It will be necessary to use a pile form tube when the shear pile is constructed in this configuration.

#### *Rock Cores*

1. Rock core samples from the 2013 subsurface investigation are available for bidder viewing at the California Department of Transportation, Translab, 5900 Folsom Blvd., Sacramento, CA. Caltrans Standard Specifications 2-1.06B, Supplemental Project Information, describes the core view request process. It is highly recommended that the Contractor inspect/observe the core samples before bidding.

#### *Foundation Construction*

1. Groundwater was encountered during the 2013 subsurface investigation. It is expected that groundwater will be encountered during the construction of the shear piles. Groundwater surface elevation is subject to seasonal fluctuations and may occur at a higher or lower elevation than indicated on the Log of Test Borings (LOTB) sheets and this report. Measures to control groundwater inflows are normal construction considerations and it is expected that the contractor will use his expertise to employ the appropriate groundwater control measure. This may include common techniques such as casing, backfilling the borehole with grout and drilling it out, and groundwater pumping.
2. The location 1 and location 2 shear piles are proposed to be placed in locations that are underlain by rock buttress fills. It will be necessary to either remove the rocks before drilling for the shear piles, or drill through the rock buttresses.
3. Caving of the foundation materials into the shear pile excavations is a possibility due to the presence of ground water, rock buttress fill, soil fill, landslide debris, decomposed rock, moderately to intensely fractured rock, very intensely sheared rock and pervasively sheared rock. The contractor is expected to use his expertise to determine the appropriate construction techniques to construct the shear piles.
4. The shear piles will be installed through an earth mass that has undergone landslide movement. Open fractures produced by ground movement may be intercepted by the shear pile excavations, and provide avenues for concrete loss.

## Project Information

Standard Specifications Section 2-1.06B, "Supplemental Project Information," indicates that the special provisions will make supplemental project information to bidders. Items listed to be included in the information handout will be provided in Acrobat (.pdf) format to the addressee(s) of this report via electronic mail.

Data and information attached with the project plans include:

A. None

Data and Information included in the Information Handout include:

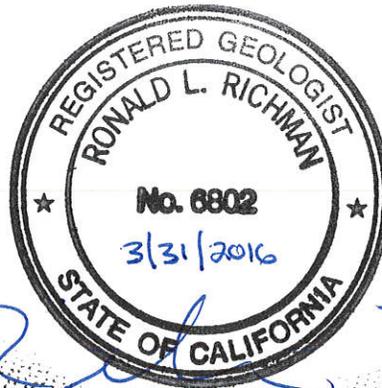
A. Geotechnical Design Report (Slope Stabilization), dated February 4, 2016.

Information available for viewing at the Caltrans Transportation Laboratory:

A. Soil and rock core samples from the 2013 subsurface investigations.

The recommendations included in this Geotechnical Design Report are based on the location, dimensions, and structural configuration information that has been provided by the Office of Engineering Services and Design West. If you have any questions or comments, please contact Ron Richman (805) 549-3385.

Report by:



Feb 8, 2016

RON RICHMAN, P.E., No. 039869, P.G. 6802  
Senior Materials & Research Engineer  
Office of Geotechnical Design-West

c: Geodog  
Tim Pokrywka

## LIST OF PLATES

Site Geology	Plate 1
Site Plan	Plate 2

## LIST OF ATTACHMENTS

Borehole records	Attachment 1
Slope inclinometer data	Attachment 2
Slope stability model cross section for location 1	Attachment 3

ILLUSTRATOR FILE: U:\GEO\TECH\_PROJECTS\Projects\Active\134314 Caltrans TO 83402 Highway 169\Illustrator



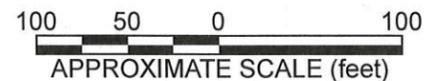
**EXPLANATION**

	Undocumented Artificial Fill: excludes thin gravel surfacing and live pavement section
	Alluvium
	Franciscan Complex: Meta-Sandstone and Meta-Shale; composes probable ancient landslide mass (3264)
	Geologic Contact: dashed where approximate
	Landslide Contact: dashed where approximate
	Active Landslide: hatchures indicate scarp area; arrows indicate direction of movement
<b>1121</b>	Landslide Identification Number: see Landslide Identification Chart, below
	Erosion Rilling
	Foliation Orientation (degrees)
	Spring Location
	Drainage Path

**LANDSLIDE IDENTIFICATION CHART**

<b>STATE OF ACTIVITY</b>	<ul style="list-style-type: none"> <li>1=Active or Recently Active (areas of unstable ground with relatively recent "fresh" geomorphic features such as ground cracks, hummocky topography, exposed soils, abrupt gradient breaks and/or disrupted vegetation, typically recent to 50 years old)</li> <li>2=Dormant (areas of quasi-stable ground, with eroded and subdued geomorphic features, no exposed soils, somewhat re-vegetated but typically with different type or density, typically &gt;50 to several hundreds of years old)</li> <li>3=Ancient (areas of relatively stable ground, typically characterized by large, broad and deep landslides with highly eroded and subdued geomorphic features, re-vegetated with similar type and density, typically several hundreds to several thousands of years old)</li> </ul>
<b>CERTAINTY OF IDENTIFICATION</b>	<ul style="list-style-type: none"> <li>1=Definite</li> <li>2=Probable</li> <li>3=Questionable</li> </ul>
<b>DOMINANT TYPE OF MOVEMENT</b>	<ul style="list-style-type: none"> <li>1=Slump Flow Complex</li> <li>2=Debris Slide</li> <li>3=Debris Flow</li> <li>4=Earth Flow</li> <li>5=Slump</li> <li>6=Translational</li> <li>7=Rockfall/Topple</li> <li>8=Wedge Slide</li> </ul>
<b>THICKNESS OF DEPOSIT</b>	<ul style="list-style-type: none"> <li>1=Less Than 5 Feet</li> <li>2=5 to 15 Feet</li> <li>3=15 to 50 Feet</li> <li>4=Greater Than 50 Feet</li> </ul>

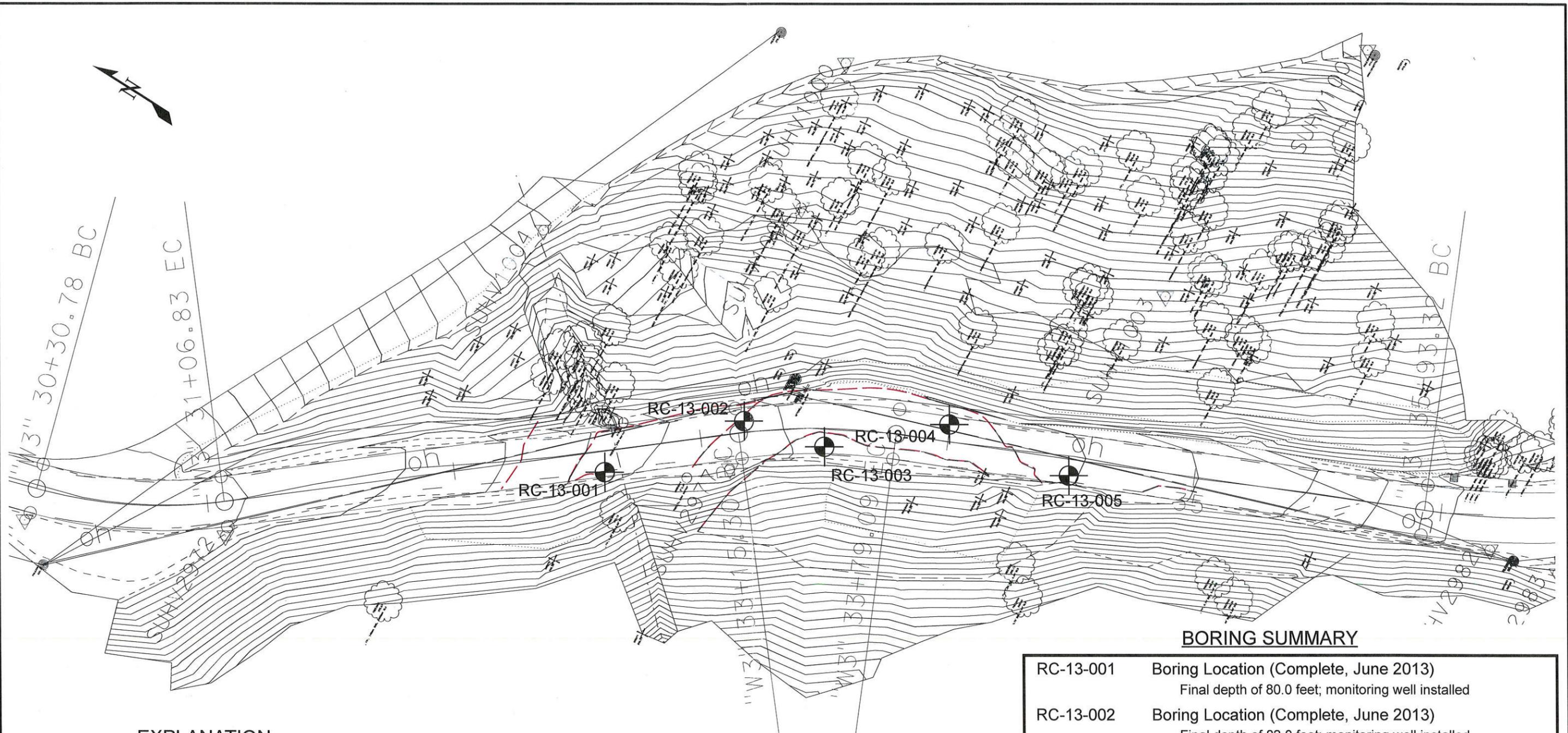
Santa Rosa  
Aerial Photo Provided by: Caltrans, 2013  
The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.



PROJECT NO.	134314
DRAWN	NOV 2013
DRAWN BY	JCR
CHECKED BY	WVM
FILE NAME	Geologic Map.ai

<b>SITE GEOLOGY</b>	
EA: 01-0B4401 01-HUM-169-PM 29.8 HUMBOLDT COUNTY, CALIFORNIA	

PLATE  
**1**



**EXPLANATION**

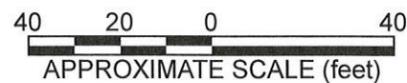
RC-13-001		Boring Location
		Observed Cracking

**BORING SUMMARY**

RC-13-001	Boring Location (Complete, June 2013) Final depth of 80.0 feet; monitoring well installed
RC-13-002	Boring Location (Complete, June 2013) Final depth of 82.0 feet; monitoring well installed
RC-13-003	Boring Location (Complete, June 2013) Final depth of 140.0 feet; slope inclinometer installed to 136.75 feet and grouted in place
RC-13-004	Boring Location (Complete, September 2013) Final depth of 140.0 feet; semi-perforated slope inclinometer installed to 140.0 feet and sanded in place
RC-13-005	Boring Location (Complete, September 2013) Final depth of 100.0 feet; slope inclinometer installed to 90.5 feet and grouted in place

Basemap Source: Caltrans, W3\_exist\_CL\_ & topo.dgn; received 9-26-13

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PROJECT NO.	134314
DRAWN	NOV 2013
DRAWN BY	MJP
CHECKED BY	EGJ
FILE NAME	Site Plan.ai

<b>SITE PLAN</b>	
EA: 01-0B4401 01-HUM-169-PM 29.8 HUMBOLDT COUNTY, CALIFORNIA	

**ATTACHMENT 1**

**GROUP SYMBOLS AND NAMES**

Graphic / Symbol	Group Names	Graphic / Symbol	Group Names
	GW Well-graded GRAVEL Well-graded GRAVEL with SAND		CL Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
	GP Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
	GW-GM Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND		
	GW-GC Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GP-GM Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND		
	GP-GC Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GM SILTY GRAVEL SILTY GRAVEL with SAND		
			GC CLAYEY GRAVEL CLAYEY GRAVEL with SAND
		GC-GM SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND	
		SW Well-graded SAND Well-graded SAND with GRAVEL	
		SP Poorly graded SAND Poorly graded SAND with GRAVEL	
		SW-SM Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL	
		SW-SC Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	
		SP-SM Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL	
		SP-SC Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)	
		SM SILTY SAND SILTY SAND with GRAVEL	
		SC CLAYEY SAND CLAYEY SAND with GRAVEL	
		SC-SM SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL	
		PT PEAT	
		COBBLES COBBLES and BOULDERS BOULDERS	

**FIELD AND LABORATORY TESTS**

- C Consolidation (ASTM D 2435-04)
- CL Collapse Potential (ASTM D 5333-03)
- CP Compaction Curve (CTM 216 - 06)
- CR Corrosion, Sulfates, Chlorides (CTM 643 - 99; CTM 417 - 06; CTM 422 - 06)
- CU Consolidated Undrained Triaxial (ASTM D 4767-02)
- DS Direct Shear (ASTM D 3080-04)
- EI Expansion Index (ASTM D 4829-03)
- M Moisture Content (ASTM D 2216-05)
- OC Organic Content (ASTM D 2974-07)
- P Permeability (CTM 220 - 05)
- PA Particle Size Analysis (ASTM D 422-63 [2002])
- PI Liquid Limit, Plastic Limit, Plasticity Index (AASHTO T 89-02, AASHTO T 90-00)
- PL Point Load Index (ASTM D 5731-05)
- PM Pressure Meter
- PP Pocket Penetrometer
- R R-Value (CTM 301 - 00)
- SE Sand Equivalent (CTM 217 - 99)
- SG Specific Gravity (AASHTO T 100-06)
- SL Shrinkage Limit (ASTM D 427-04)
- SW Swell Potential (ASTM D 4546-03)
- TV Pocket Torvane
- UC Unconfined Compression - Soil (ASTM D 2166-06) Unconfined Compression - Rock (ASTM D 2938-95)
- UU Unconsolidated Undrained Triaxial (ASTM D 2850-03)
- UW Unit Weight (ASTM D 4767-04)
- VS Vane Shear (AASHTO T 223-96 [2004])

**SAMPLER GRAPHIC SYMBOLS**

- Standard Penetration Test (SPT)
- Standard California Sampler
- Modified California Sampler
- Shelby Tube
- Piston Sampler
- NX Rock Core
- HQ Rock Core
- Bulk Sample
- Other (see remarks)

**DRILLING METHOD SYMBOLS**

- Auger Drilling
- Rotary Drilling
- Dynamic Cone or Hand Driven
- Diamond Core

**WATER LEVEL SYMBOLS**

- First Water Level Reading (during drilling)
- Static Water Level Reading (short-term)
- Static Water Level Reading (long-term)



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REPORT TITLE

**BORING RECORD LEGEND**

DIST. <b>01</b>	COUNTY <b>Humboldt</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
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PROJECT OR BRIDGE NAME

**Highway 169**

BRIDGE NUMBER	PREPARED BY	DATE <b>11-27-13</b>	SHEET <b>1 of 3</b>
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**CONSISTENCY OF COHESIVE SOILS**

Descriptor	Unconfined Compressive Strength (tsf)	Pocket Penetrometer (tsf)	Torvane (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 - 0.50	0.25 - 0.50	0.12 - 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 - 1.0	0.50 - 1.0	0.25 - 0.50	Can be penetrated several inches by thumb with moderate effort
Stiff	1.0 - 2.0	1.0 - 2.0	0.50 - 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2.0 - 4.0	2.0 - 4.0	1.0 - 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

**APPARENT DENSITY OF COHESIONLESS SOILS**

Descriptor	SPT N <sub>60</sub> - Value (blows / foot)
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

**MOISTURE**

Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

**PERCENT OR PROPORTION OF SOILS**

Descriptor	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

**SOIL PARTICLE SIZE**

Descriptor	Size	
Boulder	> 12 inches	
Cobble	3 to 12 inches	
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay	Passing No. 200 Sieve	

**PLASTICITY OF FINE-GRAINED SOILS**

Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

**CEMENTATION**

Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

**NOTE:** This legend sheet provides descriptors and associated criteria for required soil description components only. Refer to Caltrans Soil and Rock Logging, Classification, and Presentation Manual (2010), Section 2, for tables of additional soil description components and discussion of soil description and identification.



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REPORT TITLE

**BORING RECORD LEGEND**

DIST. <b>01</b>	COUNTY <b>Humboldt</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
PROJECT OR BRIDGE NAME <b>Highway 169</b>				
BRIDGE NUMBER	PREPARED BY	DATE <b>11-27-13</b>	SHEET <b>2 of 3</b>	

ROCK GRAPHIC SYMBOLS	
	IGNEOUS ROCK
	SEDIMENTARY ROCK
	METAMORPHIC ROCK

BEDDING SPACING	
Descriptor	Thickness or Spacing
Massive	> 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8 inches to 1 ft
Thinly bedded	1-1/4 to 3-5/8 inches
Very thinly bedded	3/8 inch to 1-1/4 inches
Laminated	< 3/8 inch

WEATHERING DESCRIPTORS FOR INTACT ROCK						
Descriptor	Diagnostic Features					General Characteristics
	Chemical Weathering-Discoloration-Oxidation		Mechanical Weathering and Grain Boundary Conditions	Texture and Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized	No discoloration or oxidation	No separation, intact (tight)	No change	No solutioning	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull	Minor to complete discoloration or oxidation of most surfaces	No visible separation, intact (tight)	Preserved	Minor leaching of some soluble minerals may be noted	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty"; feldspar crystals are "cloudy"	All fracture surfaces are discolored or oxidized	Partial separation of boundaries visible	Generally preserved	Soluble minerals may be mostly leached	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in situ disaggregation (refer to grain boundary conditions)	All fracture surfaces are discolored or oxidized; surfaces are friable	Partial separation, rock is friable; in semi-arid conditions, granitics are disaggregated	Altered by chemical disintegration such as via hydration or argillation	Leaching of soluble minerals may be complete	Dull sound when struck with hammer; usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay		Complete separation of grain boundaries (disaggregated)	Resembles a soil; partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes".

**Note:** Combination descriptors (such as "slightly weathered to fresh") are used where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant identifiable zones can be delineated. Only two adjacent descriptors shall be combined. "Very intensely weathered" is the combination descriptor for "decomposed to intensely weathered".

RELATIVE STRENGTH OF INTACT ROCK	
Descriptor	Uniaxial Compressive Strength (psi)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

ROCK HARDNESS	
Descriptor	Criteria
Extremely Hard	Specimen cannot be scratched with pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows
Very hard	Specimen cannot be scratched with pocket knife or sharp pick; breaks with repeated heavy hammer blows
Hard	Specimen can be scratched with pocket knife or sharp pick with heavy pressure; heavy hammer blows required to break specimen
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure; breaks with moderate hammer blows
Moderately Soft	Specimen can be grooved 1/6 in. with pocket knife or sharp pick with moderate or heavy pressure; breaks with light hammer blow or heavy hand pressure
Soft	Specimen can be grooved or gouged with pocket knife or sharp pick with light pressure, breaks with light to moderate hand pressure
Very Soft	Specimen can be readily indented, grooved, or gouged with fingernail, or carved with pocket knife; breaks with light hand pressure

CORE RECOVERY CALCULATION (%)	
$\frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100$	

FRACTURE DENSITY	
Descriptor	Criteria
Unfractured	No fractures
Very Slightly Fractured	Lengths greater 3 ft
Slightly Fractured	Lengths from 1 to 3 ft, few lengths outside that range
Moderately Fractured	Lengths mostly in range of 4 in. to 1 ft, with most lengths about 8 in.
Intensely Fractured	Lengths average from 1 in. to 4 in. with scattered fragmented intervals with lengths less than 4 in.
Very Intensely Fractured	Mostly chips and fragments with few scattered short core lengths

RQD CALCULATION (%)	
$\frac{\sum \text{Length of intact core pieces} > 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100$	



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REPORT TITLE

**BORING RECORD LEGEND**

DIST. <b>01</b>	COUNTY <b>Humboldt</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
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PROJECT OR BRIDGE NAME  
**Highway 169**

BRIDGE NUMBER	PREPARED BY	DATE <b>11-27-13</b>	SHEET <b>3 of 3</b>
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LOGGED BY <b>Eric Johnson</b>	BEGIN DATE <b>6-2-13</b>	COMPLETION DATE <b>6-2-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>RC-13-001</b>
DRILLING CONTRACTOR <b>CalTrans</b>	BOREHOLE LOCATION (Offset, Station, Line) <b>~6.40' Rt Sta ~32+59,"W3"</b>		SURFACE ELEVATION <b>~314.0 ft</b>	
DRILLING METHOD <b>Rotary Wash/Continuous Core</b>	DRILL RIG <b>Acker 1974</b>		BOREHOLE DIAMETER <b>6.0 (Reamed Dia.)</b>	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>SPT (1.4")</b>	SPT HAMMER TYPE <b>140 lbs - 30-inch drop</b>		HAMMER EFFICIENCY, ERI <b>83%</b>	
BOREHOLE BACKFILL AND COMPLETION <b>Monitoring Well</b>	GROUNDWATER READINGS	DURING DRILLING <b>No Observations Made</b>	AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING <b>80.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		ASPHALT (66").		C01			0							
312.00	2				S02	2	7	67							
308.00	6		SILTY GRAVEL with SAND (GM); loose; dark gray and olive gray; moist; mostly GRAVEL, from coarse to fine; little SAND, from coarse to fine; (FILL).		C03	4		29							
306.00	8														
304.00	10		SANDY lean CLAY (CL); soft to medium stiff; gray; wet; trace fine GRAVEL; some SAND, from coarse to fine; micaceous.		S04	1	5	56							
302.00	12				C05	2		83							
300.00	14														
298.00	16				C06	3		86							soft drilling at 15' to 18'
296.00	18														
294.00	20		METAMORPHIC ROCK, (META-SANDSTONE BLOCK), moderately weathered, hard.		S07	2	5	83							hard drilling at 19'
292.00	22		SANDY lean CLAY with GRAVEL (CL); medium stiff; gray; moist; little fine GRAVEL; some SAND, from coarse to fine.		C08	3		100							
290.00	24				S09	50/4	REF	50							
	25				C10			48							

(continued)

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314\_CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-001</b>
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
PROJECT OR BRIDGE NAME <b>Highway 169</b>				
BRIDGE NUMBER	PREPARED BY <b>A. May</b>	DATE <b>11-27-13</b>	SHEET <b>1 of 3</b>	

5 BR - STANDARD 01 - HUM - 169 - 29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
288.00	25		SANDY lean CLAY with GRAVEL (CL) (continued).	C11			72							
286.00	28		4" diameter Meta-Sandstone block. Chlorite bleb.											
284.00	30			C12			63							
278.00	35		CLAYEY GRAVEL with SAND (GC); medium dense; gray, olive gray; moist; mostly coarse GRAVEL, angular; little SAND, from coarse to fine; (BASAL RUPTURE ZONE).	C13			42							
274.00	40			C14			5							
268.00	45		QUARTZ VEIN, white, slightly weathered, very hard, moderately fractured. Joint (planar, tight), dipping 45°.	C15			43	17						
266.00	47		METAMORPHIC ROCK, (MICA SCHIST), dark gray, olive gray, slightly weathered, very hard, intensely to moderately fractured, from fine to medium grained.											
262.00	51		Joint (slightly open), dipping 50°. Joint (slightly open, clean, smooth), dipping 45°. Joint (slightly open, clean, slightly rough), dipping 2°.	C16			68	30						

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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-001</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>2 of 3</b>

5 BR - STANDARD 01 - HUM - 169 - 29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RCD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
258.00	55		METAMORPHIC ROCK ( <i>continued</i> ). Joint (slightly open, clean, slightly rough), dipping 80°.	C17			53	20						
	56		Joint (slightly open, clean, slightly rough), dipping 70°.											
	57		Joint (slightly open, clean, slightly rough), dipping 40°.											
256.00	58		Joint (tight, clean, slightly rough), dipping 30°.											
	59													
254.00	60			C18			80	33						
	61													
252.00	62		Joint (slightly open, clean, slightly rough), dipping 25°.											
	63													
250.00	64		Moderately fractured, becomes moderately weathered, hard to very hard.											
	65			C19			18	9						core mechanically fragmented
248.00	66													
	67													
246.00	68		Intensely fractured.											
	69													
244.00	70			C20			50	33						
	71		Joint (slightly open, clean, smooth), dipping 30°.											
	72		Joint (slightly open, clean, rough), dipping 15°.											
242.00	73			C21			0	0						
	74													
240.00	75			C22			0	0						
	76													
238.00	77													
	78													
236.00	79													
	80		Bottom of borehole at 80.0 ft bgs											
	81													
232.00	82		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.											
	83													
230.00	84													
	85													

**Borehole Completion Information**  
 Seal: 0 - 5' deep  
 Sand Backfill: 5' - 60' deep  
 - Screened pipe: 5' - 50'  
 - Solid-walled pipe: 50' - 60'  
 Bentonite Plug: 60' - 80' deep



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-001</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>3 of 3</b>

LOGGED BY <b>Eric Johnson</b>	BEGIN DATE <b>6-4-13</b>	COMPLETION DATE <b>6-4-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>RC-13-002</b>
DRILLING CONTRACTOR <b>CalTrans</b>	BOREHOLE LOCATION (Offset, Station, Line) <b>~8.30' Lt Sta ~33+18, "W3"</b>		SURFACE ELEVATION <b>~313.0 ft</b>	
DRILLING METHOD <b>Rotary Wash/Continuous Core</b>	DRILL RIG <b>Acker 1974</b>		BOREHOLE DIAMETER <b>6.0 (Reamed Dia.)</b>	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>SPT (1.4")</b>	SPT HAMMER TYPE <b>140 lbs - 30-inch drop</b>		HAMMER EFFICIENCY, ERI <b>83%</b>	
BOREHOLE BACKFILL AND COMPLETION <b>Monitoring Well</b>	GROUNDWATER READINGS	DURING DRILLING <b>No Observations Made</b>	AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING <b>82.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		ASPHALT (12").		C01			37							
311.00	1		SANDY lean CLAY (CL); medium stiff; dark gray; moist to wet; weak cementation; few fine GRAVEL, subangular; some SAND, from coarse to fine; micaceous.												
309.00	2														
307.00	3														
307.00	4				S02	4	14	100							
305.00	5														
305.00	6														
303.00	7				C03			50							
303.00	8														
303.00	9														
301.00	10				S04	1	7	61							
301.00	11		Soft.			3									
301.00	12				C05			76							
299.00	13														
299.00	14														
297.00	15				S06	3	11	78							
297.00	16					4									
297.00	17		Soft to medium stiff.			7									
295.00	18		Trace quartz fragments, fine gravel size.		C07			71							
293.00	19														
293.00	20				S08	7	18	67							
291.00	21					8									
291.00	22					10									
289.00	23				C09			69							
289.00	24														
	25														

(continued)

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13



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 Office of Geotechnical Design - North

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-002</b>
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
PROJECT OR BRIDGE NAME <b>Highway 169</b>				
BRIDGE NUMBER	PREPARED BY <b>A. May</b>	DATE <b>11-27-13</b>	SHEET <b>1 of 3</b>	

5 BR - STANDARD 01 - HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
287.00	25		SANDY lean CLAY (CL) (continued).	S10	8 11 15	26	94							
285.00	27		Poorly graded GRAVEL with CLAY and SAND (GP-GC); dense; gray, yellowish brown; coarse, subangular GRAVEL; little SAND, from coarse to fine.	C11			100							Tricone bit from 28' - 30'.
281.00	32		CLAYEY SAND with GRAVEL (SC); loose; darkish gray, olive; wet; mostly SAND, from coarse to fine; little GRAVEL, fine, subangular to subrounded.	C13			76							
277.00	36		METAMORPHIC ROCK, (META-SANDSTONE BLOCK), moderately weathered, hard, intensely fractured.	S14	15 18 28	46	100							
275.00	38		CLAYEY SAND (SC); dense; gray; moist; mostly SAND, from coarse to fine; few GRAVEL, fine, subangular.	C15			52							
273.00	40		Calcite veins.	S16	10 21 28	49	78							
271.00	42			C17			117							
269.00	44		Very dense.	S18	50/1	REF	0							Tricone bit from 45' - 50'.
263.00	50		METAMORPHIC ROCK, (QUARTZ MICA SCHIST), fine-grained to medium-grained, gray, yellowish brown, moderately to slightly weathered, very hard, very intensely fractured.	C19			50	0						Rapid drilling.
261.00	52		Joint (slightly open, clean, smooth), dipping 45°.											
261.00	52		Joint (slightly open, clean, smooth), dipping 45°.											
259.00	54		Joint (slightly open, clean, smooth), dipping 27°.											
259.00	54		Joint (slightly open, clean, smooth), dipping 10°.											

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-002</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>2 of 3</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ\_CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
257.00	56		METAMORPHIC ROCK (continued).	C20			5	0						
255.00	58													
253.00	60													
251.00	62		Joint (slightly open, clean, smooth), dipping 45°.	C21			50	0						
249.00	64		Joint (slightly open, clean, smooth), dipping 30°.	C22			72	11						
247.00	66		Intensely fractured, moderately weathered, hard.											
245.00	68		Joint (slightly open, clean, slightly rough), dipping 70 to 75°.	C23			67	19						Moderate circulation loss
243.00	70		Joint (slightly open, clean, slightly rough), dipping 28°.	C24			57	0						
241.00	72		Moderately weathered, hard to very hard.											
239.00	74		Joint (tight, clean, smooth), dipping 10°.	C25			90	37						
237.00	76		Joint (slightly open, clean, slightly rough), dipping 22°.											
235.00	78		Moderately fractured.											
233.00	80		METAMORPHIC ROCK, (QUARTZ MICA SCHIST), gray, light gray, grayish white, slightly weathered, very hard, very intensely fractured, gneissic.	C26			0	0						
231.00	82													
229.00	84													
	85		Bottom of borehole at 82.0 ft bgs											

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

**Borehole Completion Information**  
 Seal: 0 - 5' deep  
 Sand Backfill: 5' - 51' deep  
 - Screened pipe: 5' - 50'  
 Bentonite Plug: 51' - 82' deep



Department of Transportation  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-002</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>3 of 3</b>

LOGGED BY <b>Eric Johnson</b>	BEGIN DATE <b>6-6-13</b>	COMPLETION DATE <b>6-11-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>RC-13-003</b>
DRILLING CONTRACTOR <b>CalTrans</b>	BOREHOLE LOCATION (Offset, Station, Line) <b>~3.30' Rt Sta ~33+50, "W3"</b>		SURFACE ELEVATION <b>~311.5 ft</b>	
DRILLING METHOD <b>Rotary Wash/Continuous Core</b>	DRILL RIG <b>Acker 1974</b>		BOREHOLE DIAMETER <b>6.0 (Reamed Dia.)</b>	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>SPT (1.4")</b>	SPT HAMMER TYPE <b>140 lbs - 30-inch drop</b>		HAMMER EFFICIENCY, ERI <b>83%</b>	
BOREHOLE BACKFILL AND COMPLETION <b>Inclinometer (grouted)</b>	GROUNDWATER READINGS	DURING DRILLING <b>No Observations Made</b>	AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING <b>140.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	0		ASPHALT (6").		C01			37							
309.50	1		Poorly graded SAND with CLAY and GRAVEL (SP-SC); dense; dark brown; wet; mostly SAND, from coarse to fine; little fine subangular GRAVEL; asphalt concrete in sample; (FILL).												
307.50	2														
305.50	3														
	4														
	5														
	6				S02	20	28	89							
	7														
303.50	8		Poorly graded GRAVEL with CLAY and SAND (GP-GC); medium dense to dense; dark brown; wet; mostly fine GRAVEL, subangular; little SAND, from coarse to fine; asphalt concrete in sample; (FILL).		C03			57							
301.50	9														
	10														
	11		SILTY CLAY (CL-ML); very soft; wet; trace GRAVEL, fine, subangular; few SAND, fine; micaceous.		S04	2	8	50							
	12														
299.50	13				C05			36							
297.50	14														
295.50	15														
	16				S06	2	8	50							
	17														
293.50	18				C07			57							
291.50	19														
	20														
	21				S08	3	13	50							
	22														
289.50	23		Soft; quartz vein remnants.		C09			43							
287.50	24														
	25														

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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-003</b>
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
PROJECT OR BRIDGE NAME <b>Highway 169</b>				
BRIDGE NUMBER	PREPARED BY <b>A. May</b>	DATE <b>11-27-13</b>	SHEET <b>1 of 5</b>	

5 BR - STANDARD 01 - HUM - 169 - 29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13 GP.J CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

5 BR - STANDARD 01 - HUM - 169 - 29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
285.50	25		SILTY CLAY (CL-ML) (continued).	S10	4 5	9	78								
	26			C11			114								
283.50	27														
	28														
	29														
281.50	30		Stiff.	S12	2 5 18	23	56								
	31		CLAYEY GRAVEL (GC); medium dense; dark gray; wet; mostly subangular GRAVEL, from coarse to fine; trace SAND, from coarse to fine.	C13			57								
279.50	32														
	33														
	34														
277.50	35		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, gray, yellowish brown, moderately to slightly weathered, hard, very intensely fractured.	S14	16 13 13	26	56								
	36			C15			72	0							
	37														
273.50	38			C16			33	0							
	39			C17			40	0							
271.50	40														caving at 40' deep
	41														
269.50	42														
	43			C18			27	0							
267.50	44														
	45			C19			72	37							
265.50	46		Moderately fractured. Joint (slightly open, clean, slightly rough), dipping 60°. Joint (slightly open, clean, slightly rough), dipping 20°. Fine sandstone interbed at 47.4' - 50', slightly weathered, very hard, abundant calcite veinlets. Joint (slightly open, clean, slightly rough), dipping 60°.												
	47														
263.50	48														
	49														
261.50	50		Intensely fractured, joint (slightly open, clean, slightly rough), dipping 40°. Joint (slightly open, clean, slightly rough), dipping 50°.	C20			28	15							
	51														
259.50	52														
	53														
257.50	54			C21			43	0							
	55														

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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-003</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>2 of 5</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
255.50	56		Moderately fractured. METAMORPHIC ROCK (continued).	C22			71	42						
253.50	58			C23			60	0						
251.50	60		GRAVELLY fat CLAY (CH); stiff; gray; moist; subrounded GRAVEL, max. 1.5" in. dia..	C24			68	0						
249.50	62		Possible shear/landslide plane.											
247.50	64		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, thickly bedded, slightly weathered, very hard, very intensely to intensely fractured.											
245.50	66		Moderately fractured.	C25			87	52						
243.50	68		Joint (sandy clay infill, slightly open, smooth), dipping 10 to 30°.											
241.50	70		Slightly fractured. Joint (slightly open, clean, slightly rough), dipping 35°. Intensely fractured, joint (slightly open, clean, slightly rough), dipping 35°.	C26			60	18						
239.50	72		Moderately to highly weathered at 71.0' - 71.4'.											
237.50	74		Intensely fractured.											
235.50	76		4" quartz and calcite veins at contact. METAMORPHIC ROCK, (MICACEOUS META-SHALE), fine-grained, dark gray with white veinlets, slightly weathered, hard, intensely fractured.	C27			30	0						
233.50	78													
231.50	80													
229.50	82													
227.50	84		Very intensely fractured, very soft; pervasively sheared.	C28			20	0						
	85		Soft.	C29			44	0						

Core barrel blocked/plugged,  
advance with tricone bit from  
80' - 83'. Easy drilling from 81' - 83'

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-003</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>3 of 5</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
85			METAMORPHIC ROCK (continued).	C30			52	0						
225.50	86		Intensely fractured, Pervasively sheared, moderately soft, micaceous.											
	87													
223.50	88													
	89													
221.50	90			C31			40	0						
	91													
219.50	92													
	93													
217.50	94													
	95			C32			42	0						
215.50	96		METAMORPHIC ROCK, (MICACEOUS POORLY INDURATED META-SHALE), fine-grained, slightly weathered, very soft, pervasively sheared; (Sandy Clay (CL); very stiff to hard; moist).											
	97													
213.50	98													
	99													
211.50	100			C33			33	0						
	101		Moderately soft, intensely fractured, highly sheared.											
209.50	102													
	103													
207.50	104													
	105			C34			45	0						
205.50	106		Very soft, intensely fractured, pervasively sheared.											
	107													
203.50	108													
	109													
201.50	110			C35			71	0						
	111													
199.50	112		Quartz and calcite veins.											
	113													
197.50	114		Very soft to soft, pervasively sheared zones.	C36			52	0						
	115													

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-003</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>4 of 5</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ\_CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
195.50	116		METAMORPHIC ROCK ( <i>continued</i> ).	C36			52	0						During reaming of hole to install inclinometer, there was a void from 116' - 119'. No resistance with 6" bit.
193.50	118			C37			30	0						
191.50	120			C38			25	0						
189.50	122		Quartz and calcite veins at approximately 121' - 121.3'.											
187.50	124													
185.50	126		Calcite vein at approximately 125' - 125.3'.	C39			33	0						
183.50	128		Very soft to soft, pervasively sheared.											
181.50	130			C40			45	0						
179.50	132													
177.50	134													
175.50	136			C41			38	0						
173.50	138													
171.50	140		Bottom of borehole at 140.0 ft bgs											

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

**Borehole Completion Information**  
Solid-walled Slope Inclinometer installed to 136.75 feet deep and grouted in place.



Department of Transportation  
Division of Engineering Services  
Geotechnical Services  
Office of Geotechnical Design - North

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-003</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>5 of 5</b>

LOGGED BY <b>Martin Pucci</b>	BEGIN DATE <b>6-19-13</b>	COMPLETION DATE <b>9-16-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>RC-13-004</b>
DRILLING CONTRACTOR <b>CalTrans</b>	BOREHOLE LOCATION (Offset, Station, Line) <b>~8.30' Lt Sta ~34+00, "W3"</b>		SURFACE ELEVATION <b>~311.0 ft</b>	
DRILLING METHOD <b>Rotary Wash/Continuous Core</b>	DRILL RIG <b>Acker 1974</b>		BOREHOLE DIAMETER <b>6.0 (Reamed Dia.)</b>	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>SPT (1.4")</b>	SPT HAMMER TYPE <b>140 lbs - 30-inch drop</b>		HAMMER EFFICIENCY, ERI <b>83%</b>	
BOREHOLE BACKFILL AND COMPLETION <b>Inclinometer (sanded)</b>	GROUNDWATER READINGS	DURING DRILLING <b>No Observations Made</b>	AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING <b>140.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
0	0		ASPHALT (6").											
309.00	1		BOULDERS hard; 12" - 18"; with interstitial silty sand (SM); loose; black; wet; (FILL).											underdrain
307.00	2													Very hard drilling to 5.0'.
305.00	3													
305.00	4		Poorly graded GRAVEL with SILT and SAND (GP-GM); loose; dark gray to black; wet; subangular GRAVEL, from coarse to fine; some sand, from coarse to fine; some silt, from coarse to fine; (FILL).	S01	2	5	11							
303.00	5				2									
303.00	6				3									
301.00	7													
301.00	8		CLAYEY GRAVEL with SAND (GC); dense; dark gray, olive; wet; mostly GRAVEL, from fine to coarse, subangular; little SAND, from fine to coarse.	S02	3	145	56							
299.00	9				53									
299.00	10				92									
299.00	11			C03			100							
297.00	12		METAMORPHIC ROCK, (META-SANDSTONE BLOCK), fine-grained, slightly weathered, hard.											Punch core refusal at 13.5'.
295.00	13													
293.00	14													
293.00	15													
291.00	16		CLAYEY SAND with GRAVEL (SC); very dense; dark gray; wet; mostly SAND, from coarse to fine; some subangular gravel, coarse.	S04	80/2	REF	100							
289.00	17													
287.00	18													
	19													
	20													
	21													
	22													
	23													
	24													
	25													

(continued)



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Office of Geotechnical Design - North

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-004</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>1 of 5</b>

5 BR - STANDARD 01 HUM 169 29.8 BORING LOGS (KLF 134314, CT\_TO\_83402, MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13)

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134914, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
285.00	25		CLAYEY SAND with GRAVEL (SC) <i>(continued)</i> .	S05	37 36 15	51	56							
	27			C06			19							
283.00	28													
281.00	30		Poorly graded GRAVEL with SAND (GP); dense; gray; wet; subangular GRAVEL, from coarse to fine; little SAND, from coarse to fine.	C07			45	0						50/1" No Recovery SPT at 30.0'.
279.00	32													
277.00	34		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, gray, dark brown, moderately to slightly weathered, moderately hard to hard, intensely fractured.	C08			47	0						
275.00	36													
273.00	38		Clayey zone at a depth of 38.5-39.5'.											
271.00	40		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, gray and dark gray, slightly weathered, hard, intensely fractured.	C09			42	0						
269.00	42		Joint (slightly open, clean, slightly rough), dipping 20°.											
267.00	44		Joint (slightly open, clean, slightly rough), dipping 75°. Joint (slightly open, clean, slightly rough), dipping 80°.	C10			80	35						
265.00	46		Joint (slightly open, clean, slightly rough), dipping 50°. Intensely to moderately fractured. Joint (slightly open, clean, slightly rough), dipping 60°.											
263.00	48		Joint (closed, clean, slightly rough), dipping 60°.											
261.00	50		Quartz and calcite veinlets.	C11			30	0						
259.00	52		Intensely fractured.											
257.00	54		Quartz veins, veinlets.											
	55		<i>(continued)</i>											



Department of Transportation  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-004</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>2 of 5</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ\_CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
255.00	55		METAMORPHIC ROCK (continued).	C12			50	7						
	56		Joint (slightly open, clean, slightly rough), dipping 30°.											
253.00	58													
	59		Joint (slightly open, clean, slightly rough), dipping 55°.											
251.00	60			C13			83	50						
	61													
249.00	62		Intensely fractured.	C14			50	0						Loss of circulation from 62.5' - 64.5'.
	63		Meta-shale interbed/shear zone; slightly weathered; very soft at 61.8' - 62.0', 63.2' - 63.5'; rounded clasts (corestones).											
247.00	64													
	65			C15			31	0						
245.00	66		Joint (slightly open, clean, smooth), dipping 60°.											
	67													Circulation loss at 67'.
243.00	68		Intensely fractured.											
	69		Intensely to moderately fractured.											
241.00	70		Foliated meta-shale interbeds from 69.5' to 71.6' deep; slightly weathered and moderately weathered.	C16			42	18						
	71													
239.00	72		Joint (slightly open, clean, slightly rough), dipping 50°.											
	73		Joint (tight, quartz), dipping 25°.											
237.00	74		Joint (slightly open, quartz mineralization, slightly rough), dipping 51°.	C17			93	0						
	75		METAMORPHIC ROCK, (POORLY INDURATED MICACEOUS META-SHALE), fine-grained, dark gray, slightly weathered, very soft, intensely fractured; (Sandy CLAY/Clayey SAND (CL/SC); hard; moist; from fine to coarse grained sand).	C18			89	0						
235.00	76													
	77		Micaceous, quartz veinlets, localized moderately soft zones.	C19			81	0						
233.00	78													
	79			C20			0	0						
231.00	80		Slightly weathered, moderately hard, calcite veins and veinlets.	C21			53	0						
	81													
229.00	82													
	83		Convolute foliation, folding.											
227.00	84													
	85													

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-004</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>3 of 5</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
225.00	86		METAMORPHIC ROCK (continued).	C22			13	0						
223.00	88													Limited recovery.
221.00	90			C23			10	0						
219.00	92		Very soft, pervasively sheared to firm gravelly clay, greasy.											
217.00	94													Limited recovery.
215.00	96			C24			30	0						
213.00	98													
211.00	100			C25			27	0						
209.00	102													
207.00	104		Moderately hard, intensely fractured, convolute foliation.	C26			0	0						No recovery at 105' to 107.5'.
205.00	106													
203.00	108		Abundant foliation parallel calcite veins and veinlets.	C27			40	0						
201.00	110		Soft clay shear at 109' to 110'.	C28			60	0						
199.00	112			C29			0	0						
197.00	114			C30			17	0						

(continued)



Department of Transportation  
 Division of Engineering Services  
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 Office of Geotechnical Design - North

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-004</b>
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>
PROJECT OR BRIDGE NAME <b>Highway 169</b>				
BRIDGE NUMBER	PREPARED BY <b>A. May</b>	DATE <b>11-27-13</b>	SHEET <b>4 of 5</b>	

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
195.00	116		Very soft, pervasively sheared to firm gravelly clay, greasy.	C31			20	0						
193.00	118			C32			30	0						
189.00	122		Moderately hard, very intensely fractured, abundant calcite veins, veinlets parallel to convolute foliation, local clay matrix infill.	C33			8	0						Begin circulation loss at 124'.
187.00	124			C34			53	0						
183.00	128			C35			7	0						
181.00	130			C36			17	0						
179.00	132			C37			53	0						
177.00	134													
175.00	136													
173.00	138													
171.00	140		Bottom of borehole at 140.0 ft bgs											
169.00	142		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.											
167.00	144													
	145													

**Borehole Completion Information**  
 Seal: 0 - 5' deep  
 Sand backfill: 5'-140' deep  
 - Solid-walled SI: 5' - 120'  
 - Perforated SI: 120' - 140'



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-004</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>5 of 5</b>

LOGGED BY <b>Martin Pucci</b>	BEGIN DATE <b>9-16-13</b>	COMPLETION DATE <b>9-23-13</b>	BOREHOLE LOCATION (Lat/Long or North/East and Datum)	HOLE ID <b>RC-13-005</b>
DRILLING CONTRACTOR <b>CalTrans</b>			BOREHOLE LOCATION (Offset, Station, Line) <b>~6.30' Rt Sta ~34+49,"W3"</b>	SURFACE ELEVATION <b>~310.0 ft</b>
DRILLING METHOD <b>Rotary Wash/Continuous Core</b>			DRILL RIG <b>Acker 1974</b>	BOREHOLE DIAMETER <b>4.9 (Reamed Dia.)</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>SPT (1.4")</b>			SPT HAMMER TYPE <b>140 lbs - 30-inch drop</b>	HAMMER EFFICIENCY, ERI <b>83%</b>
BOREHOLE BACKFILL AND COMPLETION <b>Inclinometer (grouted)</b>			GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS <b>No Observations Made</b>	TOTAL DEPTH OF BORING <b>100.0 ft</b>

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks	
0	0		ASPHALT (12').													
308.00	1		CLAYEY GRAVEL with SAND (GC); loose; dark olive gray; moist; (FILL).		C1			42								
306.00	2															
304.00	3															
304.00	4		GRAVELLY lean CLAY with SAND (CL); soft; dark brown to gray; wet; some SAND, from fine to coarse, subangular; little GRAVEL, from fine to coarse, subangular; (FILL).		S2	4	9	83								
302.00	5					4										
300.00	6					5										
302.00	7		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		C3			40								
298.00	8															
296.00	9															
294.00	10		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		S4	5	9	83								
292.00	11					4										
290.00	12					5										
298.00	12		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		C5			74								
296.00	13															
294.00	14															
294.00	15		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		S6	13	46	100								
292.00	16					21										
290.00	17					25										
290.00	18		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		C7			14								
288.00	19															
286.00	20															
288.00	21		CLAYEY GRAVEL with SAND (GC); dense; gray blue, dark gray; mostly GRAVEL, from fine to coarse, subangular to subrounded; some meta-sandstone cobbles, 3"-6", hard; few SAND, from fine to coarse, subangular.		S8	25	63	78								
286.00	22					31										
286.00	23					32										
286.00	24		Increased sandy clay matrix, convolute.		C9			100								
286.00	25					C10			81							

Switch to HQ core 94 diamond impregnated bit

(continued)

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13



Department of Transportation  
 Division of Engineering Services  
 Geotechnical Services  
 Office of Geotechnical Design - North

REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-005</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>1 of 4</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
284.00	25		CLAYEY GRAVEL with SAND (GC) <i>(continued)</i> .		C11			50							
282.00	26														
280.00	27														
278.00	28														
276.00	29														
274.00	30														
272.00	31		Possible active failure plane at 31 feet.		C12			47	0						
270.00	32		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, dark gray, gray blue, slightly weathered, hard, intensely fractured.												
268.00	33														
266.00	34		Joint (slightly open, clean, slightly rough), dipping 32°.												
264.00	35		Joint (slightly open, clean, slightly rough), dipping 61°.												
262.00	36		Joint (slightly open, clean, slightly rough), dipping 50°.		C13			60	0						
260.00	37		Calcite vein from 36.0' - 36.3'.												
258.00	38														
256.00	39		Joint (slightly open, clean, slightly rough), dipping 45°.												
254.00	40		Joint (slightly open, clean, slightly rough), dipping 50°.												
252.00	41		Joint (moderately open, clean, slightly rough), dipping 66°.		C14			83	20						
250.00	42		Shear at 41': clayey sand, rock fragments to 0.5"; 35 degrees.												
248.00	43		Joint (moderately open, clean, slightly rough), dipping 56°.												
246.00	44		Joint (moderately open, clean, slightly rough), dipping 35°.												
244.00	45		Joint (moderately open, clean, slightly rough), dipping 60°.												
242.00	46		Joint (moderately open, clean, slightly rough), dipping 42°.		C15			70	48						
240.00	47		Slightly rounded clasts to 1" recovered.												
238.00	48		METAMORPHIC ROCK, (CHLORITE SCHIST), light green with white calcite veinlets, slightly weathered, hard to very hard, moderately fractured, foliated, folded pyrite mineralization locally.												
236.00	49		Joint dipping 20°.												
234.00	50														
232.00	51		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained, dark gray, slightly weathered, hard to very hard, moderately fractured.		C16			87	33						
230.00	52		Intensely fractured from 51.5' - 52.5'.												
228.00	53		Very intensely fractured from 52.5' - 57.5'.		C17			20	0						Minimal drilling resistance at 52.5' - 55.5'
226.00	54		Meta-Sandstone rock fragments 0.5" - 3.0" in sandy matrix, calcite vein remnants.												
224.00	55														

(continued)



Department of Transportation  
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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-005</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>2 of 4</b>

5 BR - STANDARD 01 HUM 169 29.8 BORING LOGS (KLF 134314, CT\_TO\_83402), MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
254.00	56		METAMORPHIC ROCK (continued).		C18			60	0						
252.00	58		Joint (moderately open, clean, slightly rough), dipping 59°.		C19			77	0						
	59		Joint (moderately open, clean, slightly rough), dipping 18°.												
250.00	60		Joint (moderately open, clean, slightly rough), dipping 61°.		C20			80	33						
	61		Joint (moderately open, clean, slightly rough), dipping 24°.												
248.00	62		<b>Shear Zone:</b> subangular to subrounded clasts in clay matrix, multiple lithologies.												
	63		METAMORPHIC ROCK, (META-SANDSTONE), fine-grained to medium-grained, dark gray, gray blue, slightly weathered, hard, intensely to moderately fractured, trace calcite veinlets.												
246.00	64		Joint (moderately open, clean, slightly rough), dipping 28°.												
	65		Joint (moderately open, clean, slightly rough), dipping 28°.												
244.00	66		Intensely fractured from 64.0' - 64.5'; rounded fragments present.		C21			53	0						
	67		Joint (moderately open, clean, slightly rough), dipping 49°.												
242.00	68		Joint (moderately open, clean, slightly rough), dipping 48°.		C22			53	0						
	69														
240.00	70				C23			0	0						
	71														
238.00	72														
	73				C24			47	0						
236.00	74		1" thick calcite vein at 73.5'; intensely fractured.												
	75														
234.00	76		Fine grained, laminated, abundant thin (0.1") calcite veinlets.		C25			42	0						
	77		METAMORPHIC ROCK, (META-SHALE), fine-grained, dark gray with white calcite veinlets, slightly weathered, soft to moderately soft, very intensely fractured with sandy clay infill, foliated, thin (0.1") meta-sandstone interbeds locally, greasy.												
232.00	78														
	79														
230.00	80		2" calcite vein at 80'.		C26			73	0						
	81														
228.00	82		Moderately hard.												
	83				C27			37	0						
226.00	84		Very soft, pervasively sheared to firm gravelly clay; argillitic; greasy.												

(continued)



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REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-005</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>3 of 4</b>

5 BR - STANDARD 01\_HUM\_169\_29.8 BORING LOGS (KLF\_134314, CT\_TO\_83402)\_MJP\_10.29.13.GPJ CALTRANS\_LIBRARY\_DEC09.GLB 11/25/13

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
224.00	86		METAMORPHIC ROCK (continued).	C28			73	0						
222.00	88		Moderately soft, calcite veins present.	C29			17	0						
220.00	90				C30			0	0					
218.00	92													
216.00	94			Very soft, pervasively sheared to firm gravelly clay; argillitic; greasy.	C31			53	0					
214.00	96				C32			23	0					
212.00	98		Moderately hard; greasy.											
210.00	100		Very soft, pervasively sheared to firm gravelly clay; argillitic; greasy.	C34			40	0						
210.00	100		Bottom of borehole at 100.0 ft bgs											
208.00	102		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.											
206.00	104													
204.00	106													
202.00	108													
200.00	110													
198.00	112													
196.00	114													
115	115													

**Borehole Completion Information**  
 Solid-walled Slope Inclinator installed to 90.5 feet deep and grouted in place.

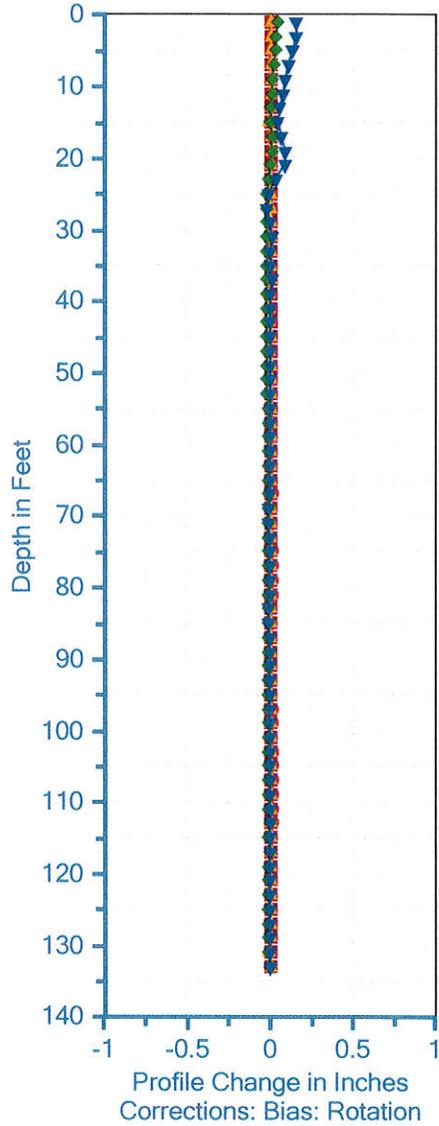
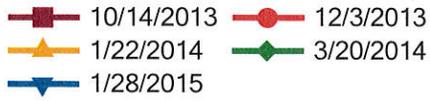


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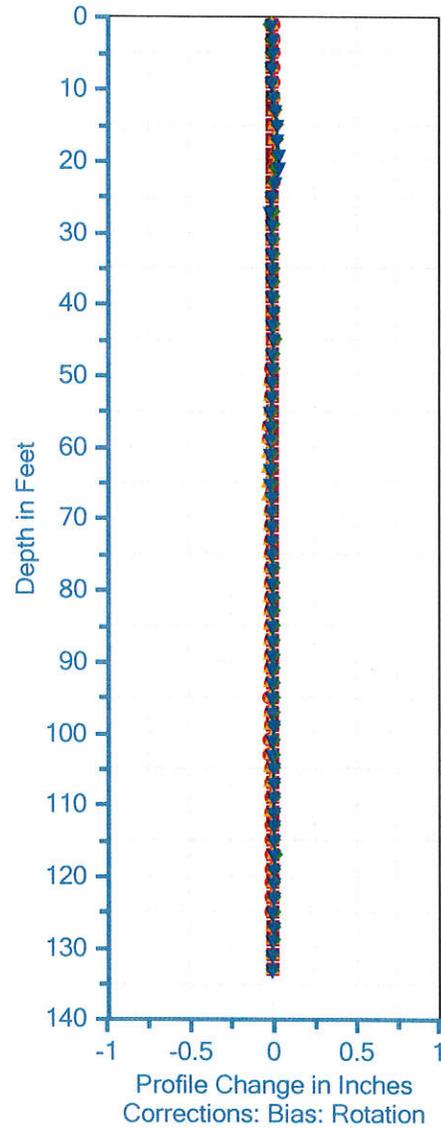
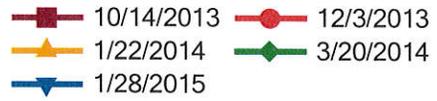
REPORT TITLE <b>BORING RECORD</b>				HOLE ID <b>RC-13-005</b>	
DIST. <b>01</b>	COUNTY <b>HUM</b>	ROUTE <b>169</b>	POSTMILE <b>29.8/29.9</b>	EA <b>01-0B4401</b>	
PROJECT OR BRIDGE NAME <b>Highway 169</b>					
BRIDGE NUMBER		PREPARED BY <b>A. May</b>		DATE <b>11-27-13</b>	SHEET <b>4 of 4</b>

## **ATTACHMENT 2**

STABIL RC-13-003 A



STABIL RC-13-003 B



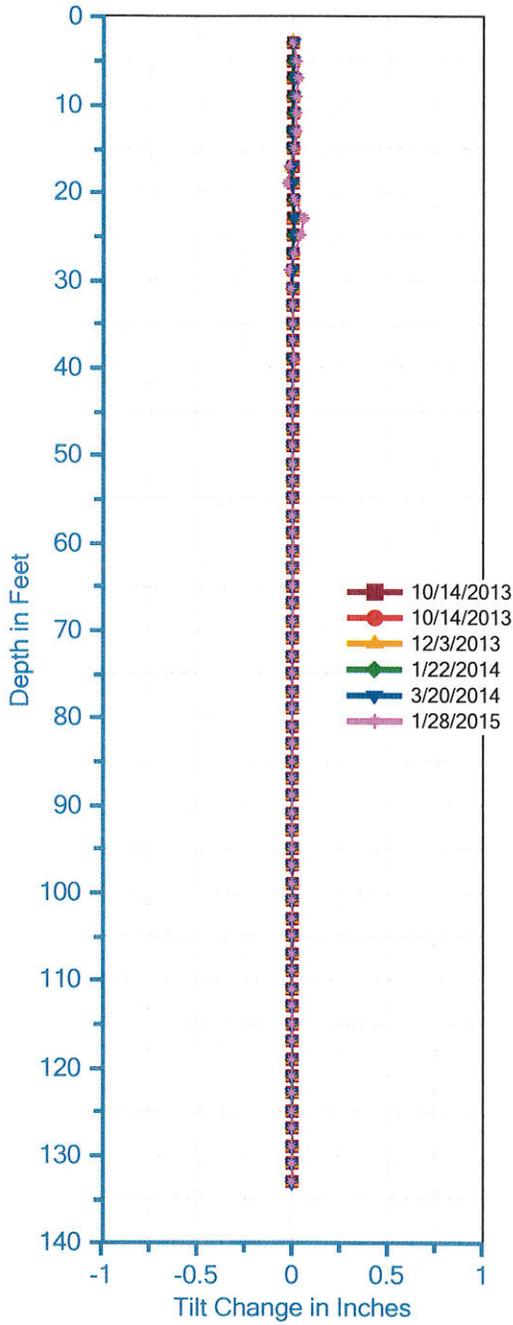
RESULT OF SI MONITORING



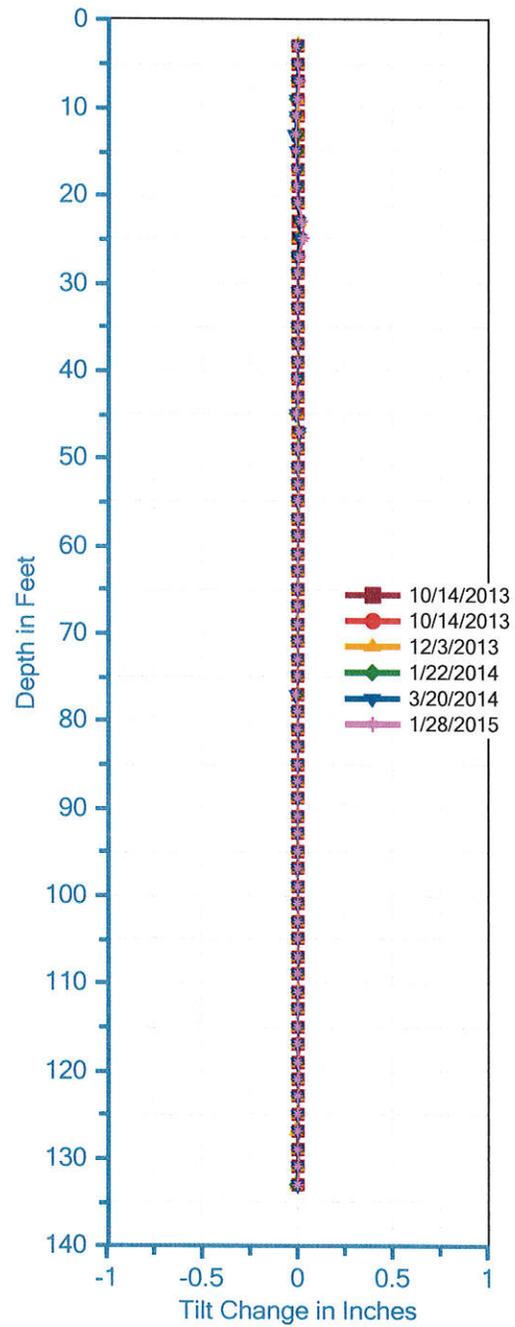
01-HUM-169-PM29.8  
 Site: Slope Stabil. RC-13-003  
 Project ID: 0112000128

Depth of Casing: 136.8 ft  
 A0 Direction (magnetic north): 222 deg.  
 Location: N41°12.811', W123°45.605'

STABIL RC-13-003 A



STABIL RC-13-003 B



RESULT OF SI MONITORING



01-HUM-169-PM29.8  
 Site: Slope Stabil. RC-13-003  
 Project ID: 0112000128

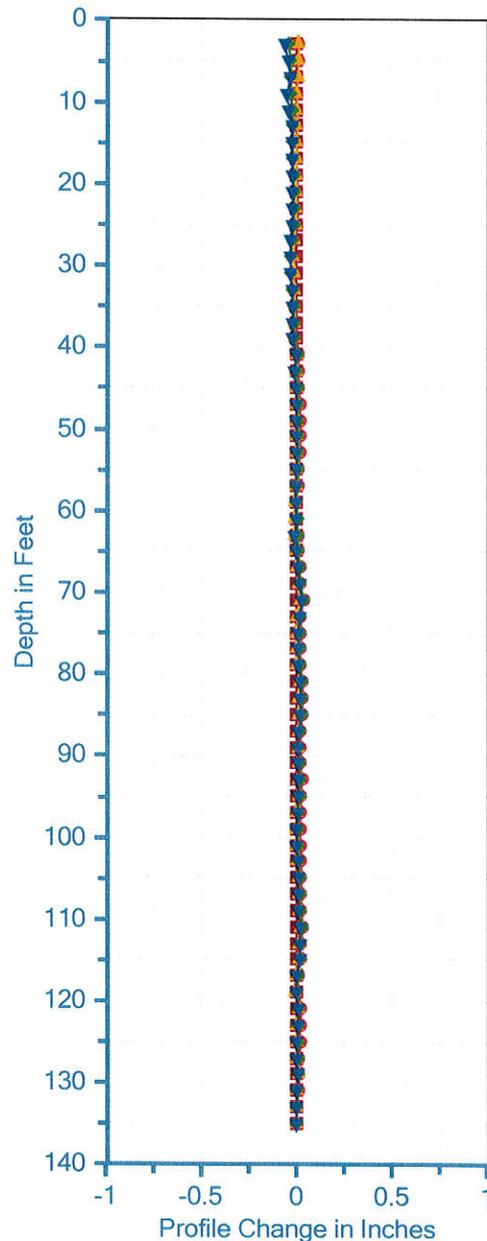
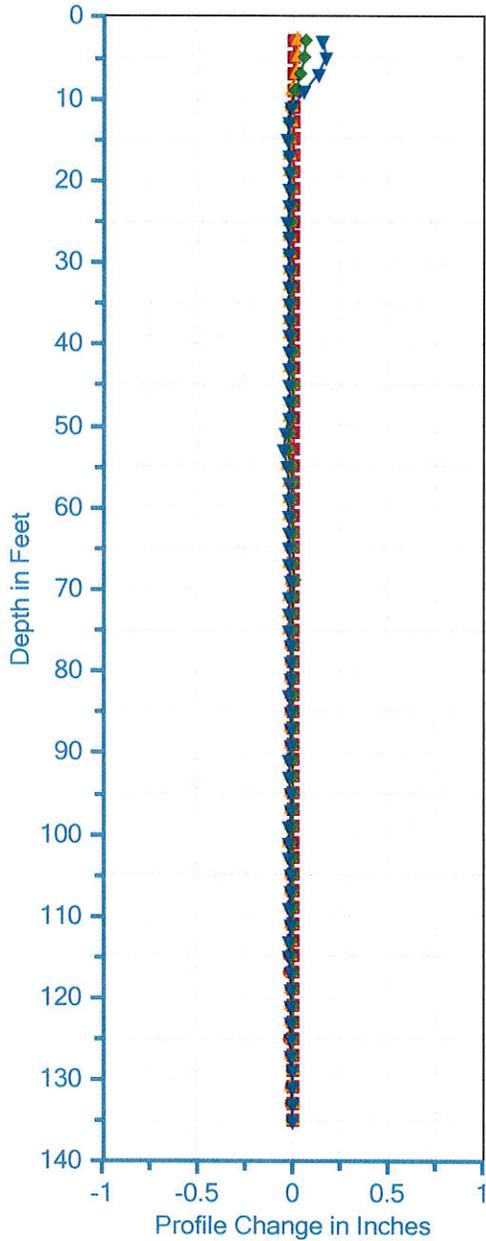
Depth of Casing: 136.8 ft  
 A0 Direction (magnetic north): 222 deg.  
 Location: N41°12.811', W123°45.605'

STABIL RC-13-004 A

STABIL RC-13-004 B

■ 10/14/2013    ● 12/3/2013    ▲ 1/22/2014  
◆ 3/20/2014    ▼ 1/28/2015

■ 10/14/2013    ● 12/3/2013    ▲ 1/22/2014  
◆ 3/20/2014    ▼ 1/28/2015



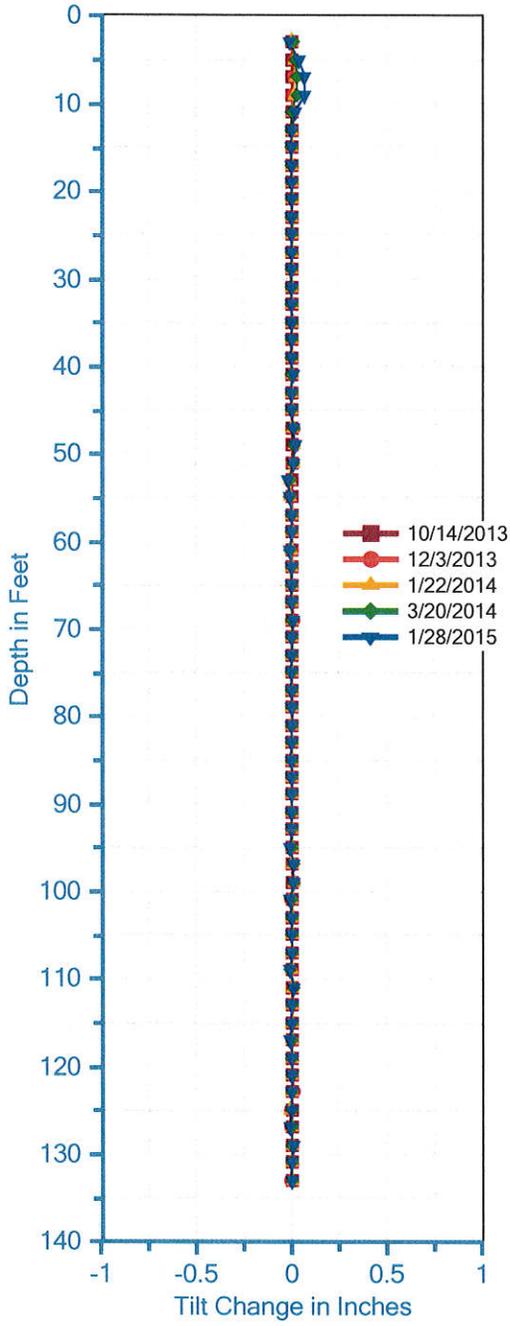
RESULT OF SI MONITORING



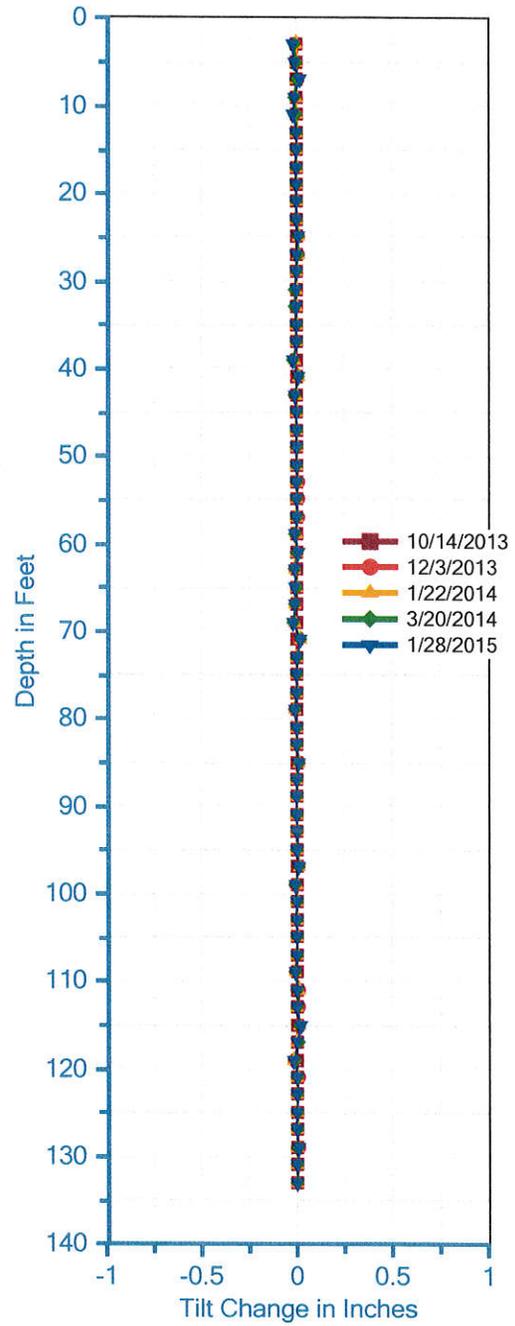
Project: Slope Stabilization, 01-HUM-169-PM29.8  
 Site: RC-13-004  
 Project ID: 0112000128

Depth of Casing: 138.4 ft  
 A0 Direction: 218 deg.  
 Location: N41°12.802', W123°45.594'

STABIL RC-13-004 A



STABIL RC-13-004 B



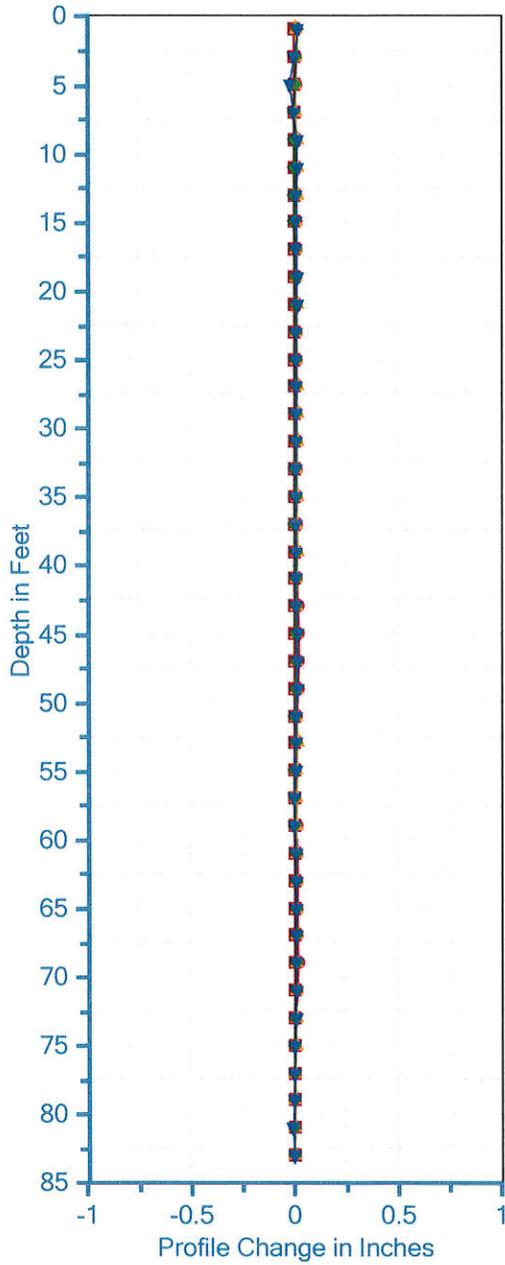
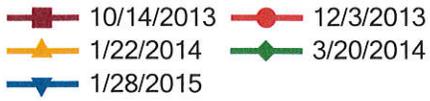
RESULT OF SI MONITORING



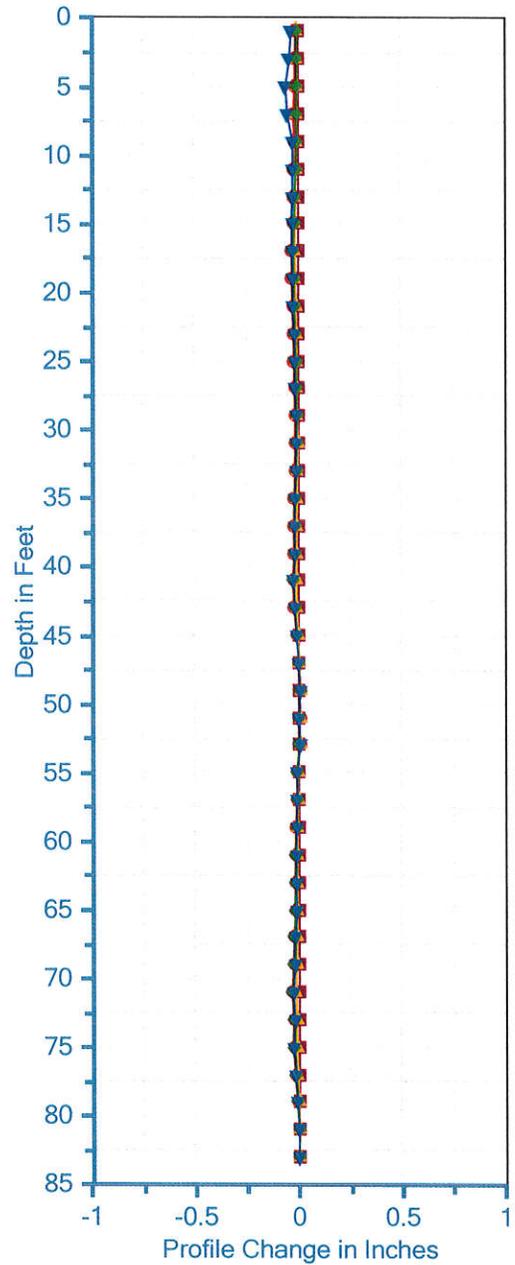
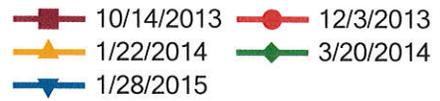
Project: Slope Stabilization, 01-HUM-169-PM29.8  
Site: RC-13-004  
Project ID: 0112000128

Depth of Casing: 138.4 ft  
A0 Direction: 218 deg.  
Location: N41°12.802', W123°45.594'

STABIL RC-13-005 A



STABIL RC-13-005 B



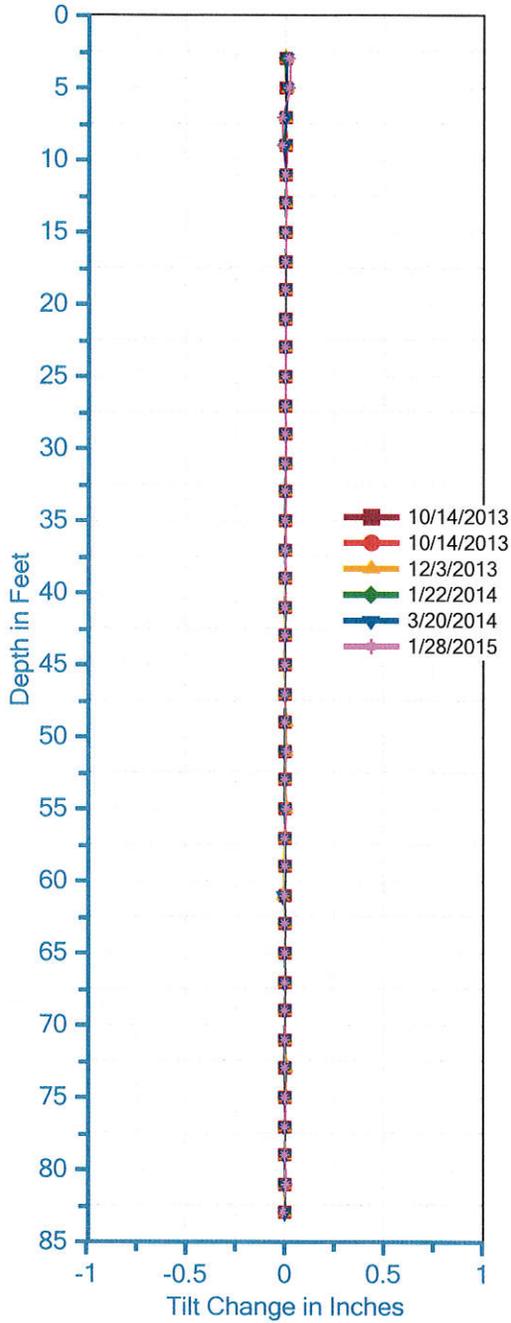
RESULT OF SI MONITORING



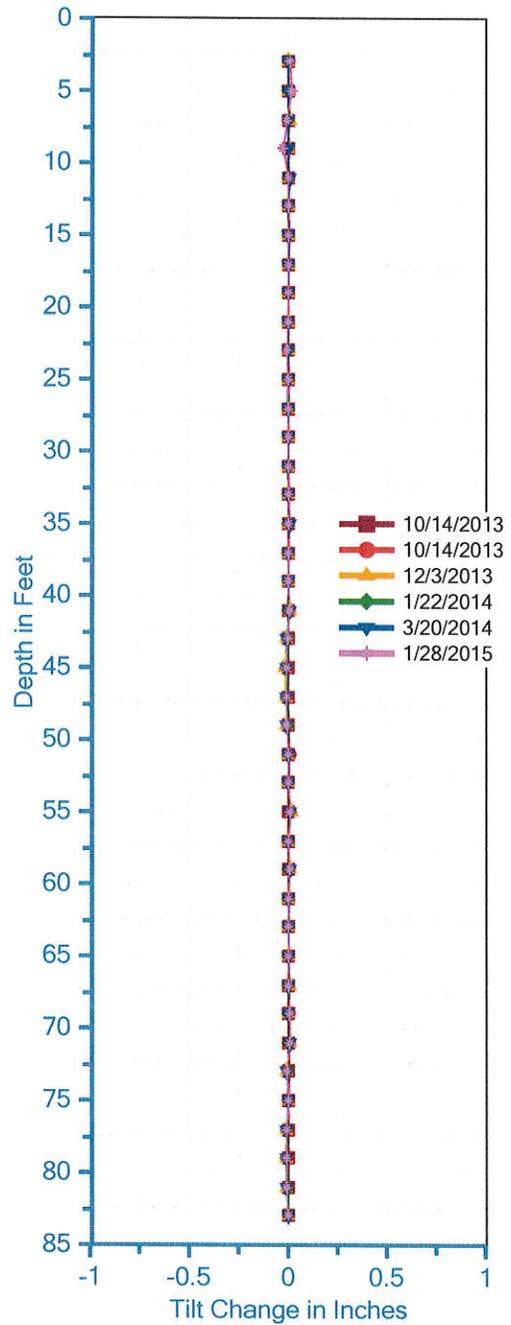
01-HUM-169-PM29.8  
 Site: Slope Stabil. RC-13-005  
 Project ID: 0112000128

Depth of Casing: 86.90 ft  
 Direction (magnetic north): 236 deg.  
 Location: N41°12.797', W123°45.587'

STABIL RC1305 A



STABIL RC1305 B



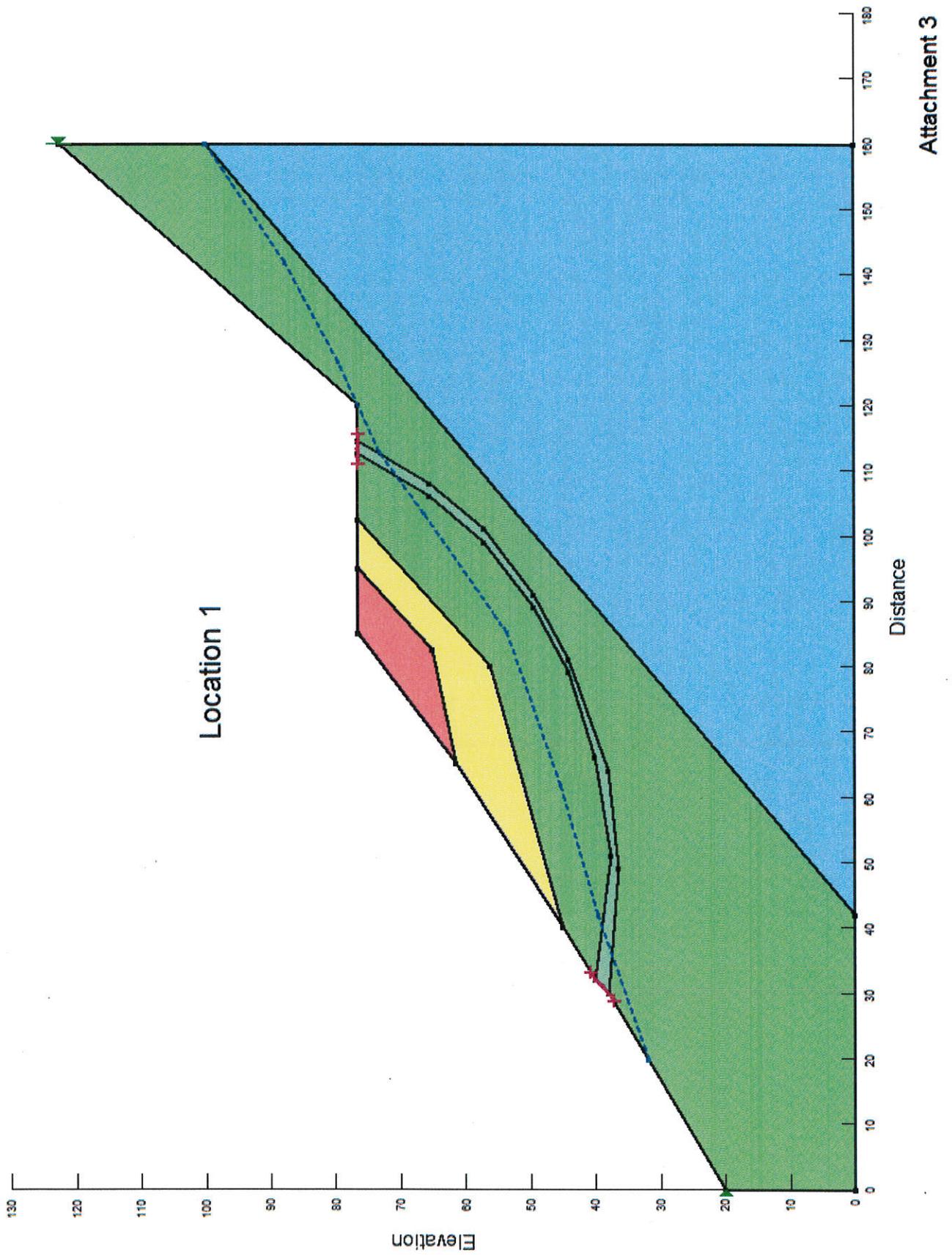
RESULT OF SI MONITORING



01-HUM-169-PM29.8  
 Site: Slope Stabil. RC-13-005  
 Project ID: 0112000128

Depth of Casing: 86.90 ft  
 Direction (magnetic north): 236 deg.  
 Location: N41°12.797', W123°45.587'

## **ATTACHMENT 3**



## **MATERIALS INFORMATION**

Department of Industrial Relations, Division of Occupational Safety and Health,  
Mining and Tunneling Unit, Underground Classification

Dated March 21, 2016

DEPARTMENT OF INDUSTRIAL RELATIONS  
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
MINING AND TUNNELING UNIT

2424 Arden Way, Suite 125  
Sacramento, California 95825  
doshMTsac@dir.ca.gov



Telephone (916) 574-2540  
FAX (916) 574-2542

March 21, 2016

Calif. Dept. of Transportation  
North Region Design R1  
District 02, Caltrans  
1031 Butte Street  
Redding, CA 96001

Attention: Jim Rasmussen

Subject: Project: 16048 – State Highway 169 Weitchpec Slipout CIDH Pilings, Humboldt County  
Classification: Potentially Gassy With Special Conditions  
Number Attached: 1 (A)

The information provided to this office relative to the above project has been reviewed. On the basis of this analysis, an Underground Classification of "Potentially Gassy With Special Conditions" has been assigned to the tunnel identified on your submittal. Please retain the original Classification for your records and deliver a true and correct copy of the Classification to the tunnel contractor for posting at the job site.

When the contractor who will be performing the work is selected, please advise them to notify this office to schedule the mandated Pre-Job Conference with the Division prior to commencing any activity associated with boring of the tunnel. A Pre-Job Request Form is enclosed.

Should you have another bore under construction that is not required to have an Underground Classification (i.e.: less than 30 inches in diameter), please contact the Mining and Tunneling Unit prior to any employee entry of such a space.

If you have any questions on this subject, please contact this office at your earliest convenience.

Sincerely,

A handwritten signature in black ink that reads "Douglas Patterson". The signature is written in a cursive style and is positioned above a horizontal line.

Douglas Patterson  
Senior Engineer

enc: Classification  
Pre-Job Request Form

cc: jim.rasmussen@dot.ca.gov



State of California

Department of Industrial Relations

DIVISION OF OCCUPATIONAL SAFETY AND HEALTH  
MINING AND TUNNELING UNIT

# Underground Classification

16048A023CT

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

of

1031 BUTTE STREET; REDDING, CA 96001

at

STATE HIGHWAY 169 WEITCHPEC SLIPOUT CIDH PILINGS

has been classified as

\*\*\* POTENTIALLY GASSY WITH SPECIAL CONDITIONS \*\*\*

as required by the California Labor Code § 7955.

The Division shall be notified if sufficient quantities of flammable gas or vapors have been encountered underground. Classifications are based on the California Labor Code Part 9, Tunnel Safety Orders and Mine Safety Orders.

### \*\*\*SPECIAL CONDITIONS\*\*\*

1. A Certified Gas Tester shall perform pre-entry and continuous monitoring of the underground environment to measure Oxygen and detect explosive, flammable, and toxic gasses whenever an employee is working in the underground environment.
2. Mechanical ventilation shall provide for continuous exhaust of fumes and air at any time an employee is working in the underground environment. The primary ventilation fans must be located outside of the underground environment and shall be reversible by a single switch near the fan location.
3. The Division shall be notified immediately if any **Flammable Gas** or **Petroleum Vapor** exceeds 5% of the Lower Explosive Limit.
4. All utilities that may be in conflict with the project shall be identified and physically located (potholed) prior to the start of project operations.

The thirty-eight 30-inch-diameter 45-to-60-foot-deep drilled shafts along State Highway 169 located approximately 2,000 feet northwest of the State Highway 169 and 96 intersection in Weitchpec, Humboldt County

This classification shall be conspicuously posted at the place of employment.

  
Douglas Ratterson, Senior Engineer

March 21, 2016

# REQUEST FOR PRE-JOB (TUNNEL)

## ATTACH COPY OF CLASSIFICATION AND DIESEL PERMIT

Company Name: \_\_\_\_\_

Phone \_\_\_\_\_ FAX: \_\_\_\_\_

DATE FAXED: \_\_\_\_\_

**PLEASE NOTE: THE BORING CONTRACTOR SHOULD SCHEDULE THE PREJOB AS FAR IN ADVANCE AS POSSIBLE - AT LEAST 3-4 DAYS IN ADVANCE. THE DIVISION REQUIRES THE JOB TO BE SET UP WHEN THE FIELD ENGINEER ARRIVES FOR THE PREJOB. THIS MEANS THAT THE BORE PIT HAS BEEN DUG AND PROPERLY GUARDED, THE CRANE IS IN PLACE AND READY TO LIFT, THE BORING MACHINE IS IN THE PIT AND READY TO GO, AND THE CREW IS READY TO BEGIN BORING THE TUNNEL. IF THERE IS A DELAY IN SETTING UP THE JOB, THE BORING CONTRACTOR SHOULD CONTACT THE DIVISION IMMEDIATELY.**

PRE-JOB REQUEST DATE & TIME: \_\_\_\_\_

ON-SITE SUPERVISOR & CELL NO.: \_\_\_\_\_

CLASSIFICATION #: \_\_\_\_\_ DIESEL PERMIT #: \_\_\_\_\_

BORE DIAMETER AND LENGTH: \_\_\_\_\_ (Diameter) \_\_\_\_\_ (Length)

IS BORE ENTRY ANTICIPATED? YES NO  
(Circle One)

**You MUST contact the Division if entry is planned, REGARDLESS of the bore diameter.**

MANNER OF EXCAVATION: \_\_\_\_\_

JOB-SITE LOCATION AND DIRECTIONS: \_\_\_\_\_

GENERAL CONTRACTOR: \_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

Mining & Tunneling Unit, District 1  
2424 Arden Way, Suite 125  
Sacramento, California 95825-2400  
(916) 574-2540; FAX: (916) 574-2542

Mining & Tunneling Unit, District 2  
6150 Van Nuys Blvd., Suite 310  
Van Nuys, California 91401-3333  
(818) 901-5420; FAX: (818) 901-5579

Mining & Tunneling Unit, District 3  
464 West Fourth Street, Suite 354  
San Bernardino, California 92401-1442  
(909) 383-6782; FAX: (909) 388-7132

## **MATERIALS INFORMATION**

Disposal Sites Location Map

Validate PM Point

Validate PM Line

Find PM

Convert Lat/Long to PM

View County Boundaries, Routes, and Calibration Postmiles

[Report LRS Error](#)

County

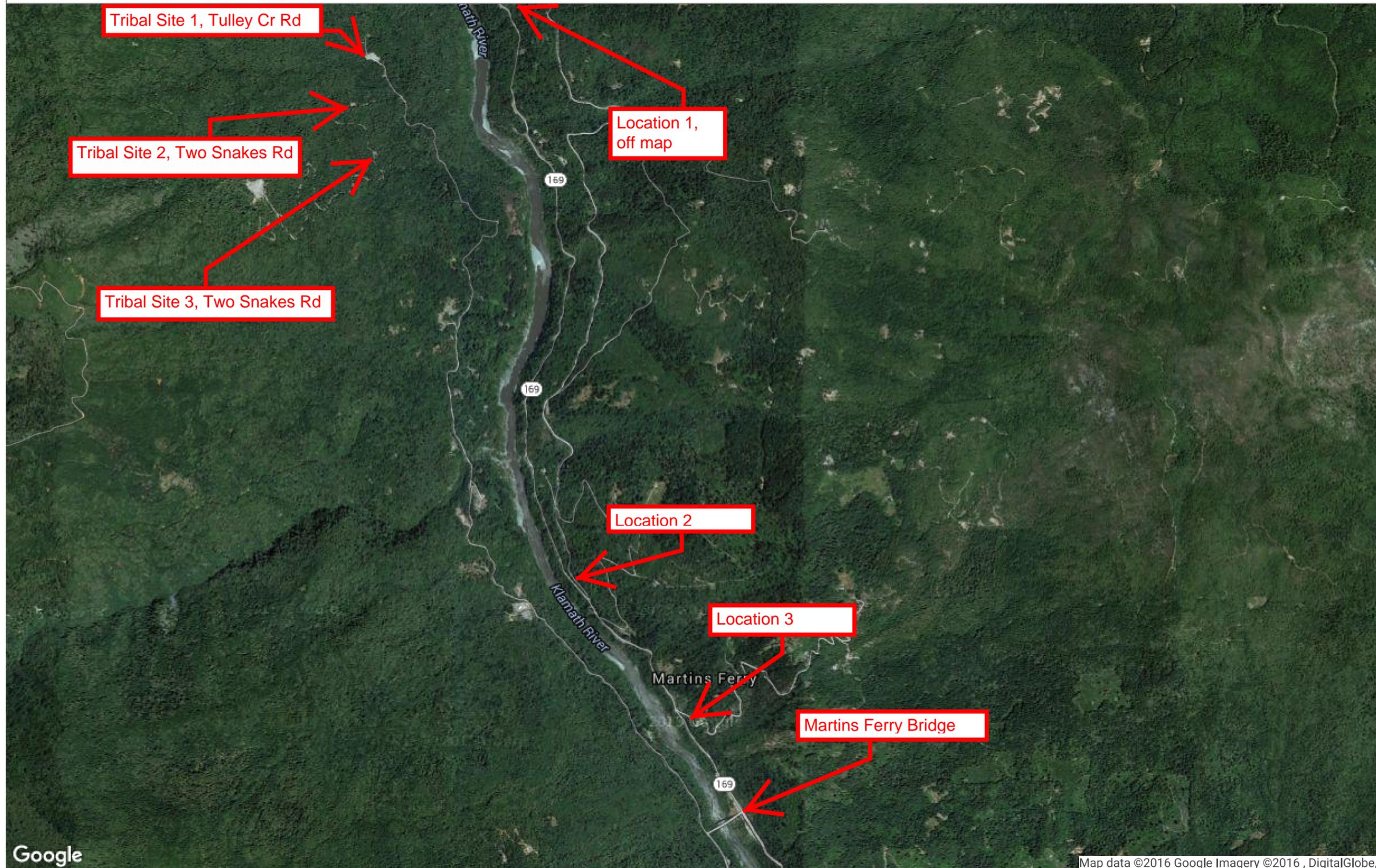
Route

Postmile

Go

Start Over

Data owner: Office of Data Services and Technology.  
Data origin: [Transportation System Network \(TSN\) Highway Sequence Listing](#)  
Data displayed represents the postmile system described in TSN as of January 30, 2014.  
If you are having issues when using IE, please use Mozilla Firefox or Google Chrome browsers



Validate PM Point

Validate PM Line

Find PM

Convert Lat/Long to PM

View County Boundaries, Routes, and Calibration Postmiles

[Report LRS Error](#)

County **HUM-Humboldt** ▼

Route **96** ▼

Postmile **35.7** ▼

**Go**

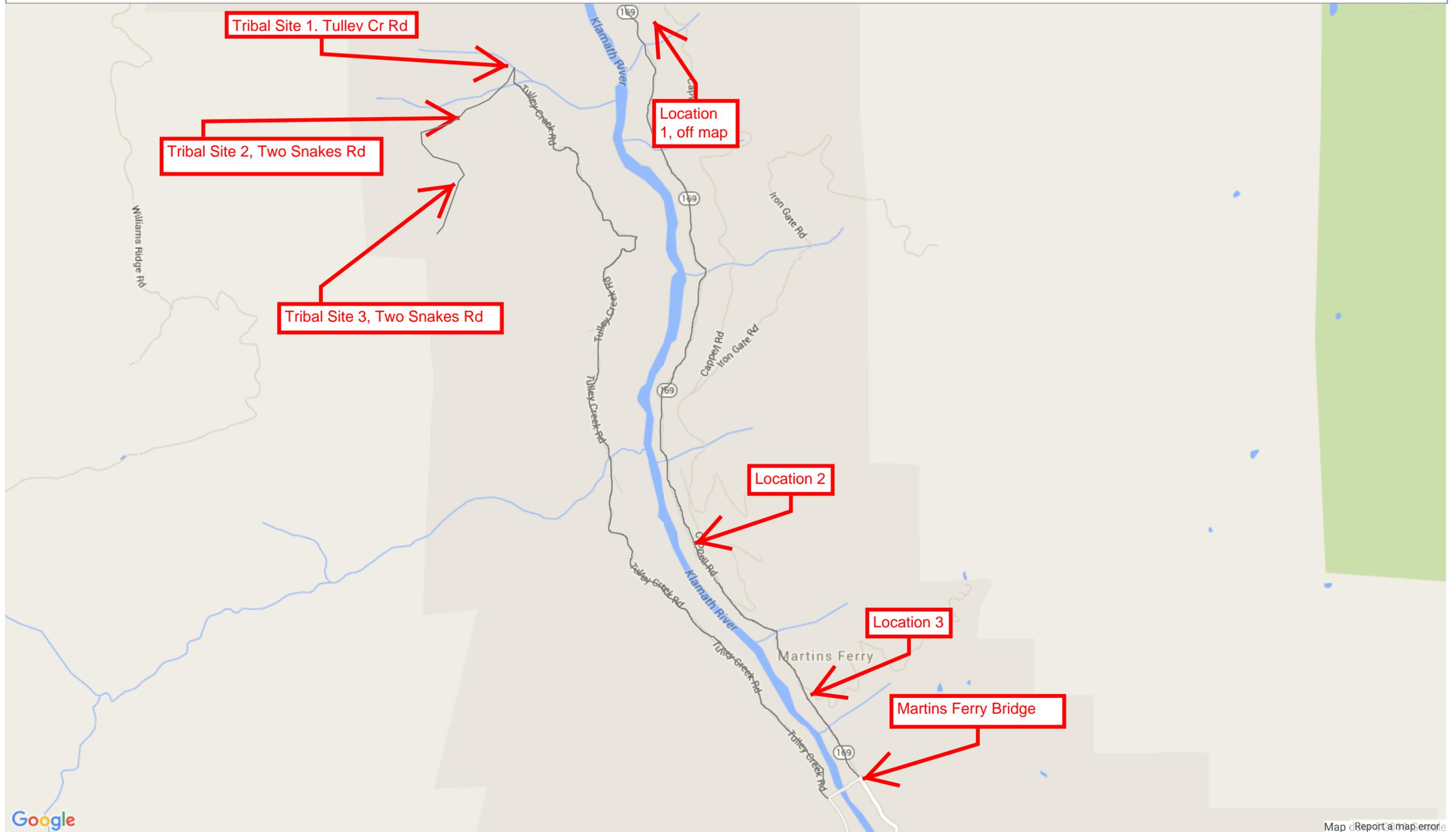
**Start Over**

Data owner: Office of Data Services and Technology.

Data origin: [Transportation System Network \(TSN\) Highway Sequence Listing](#)

Data displayed represents the postmile system described in TSN as of January 30, 2014.

If you are having issues when using IE, please use Mozilla Firefox or Google Chrome browsers



## **MATERIALS INFORMATION**

Nonpotable Water Source

Dated November, 2014

# **NONPOTABLE WATER SOURCES**

November 2014

Hoopa Valley Aggregates and Ready Mix Enterprises

Cal Pack Road, Hoopa, California, 95546

530-625-4017